



Oral, Eye and Foot Complications of Diabetes

Oral Environmental Scan

Prepared for:

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April 15, 2001

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Executive Summary

The charge of this project is to evaluate current data on diabetes, its associated complications, and its effects on minority populations. The accompanying literature review provides a background on diabetes as a major chronic disease; an overview of its burden across the U.S. population; and a discussion of findings on the foot, eye, and oral complications of diabetes. Also analyzed in this review are interventions aimed at reducing the burden of diabetes complications in minority populations.

To supplement our review of the literature, we conducted an environmental scan to obtain current information on how diabetes and its oral complications are portrayed in electronic media and how they are dealt with in the political and social environments. Internet resources, such as Web sites and listservs, were scanned for information on diabetes and oral health. Potentially competitive or duplicative programs were identified, and psycho-social and trend data were gathered. Specifically, the environmental scan identified findings about the oral complications of diabetes and about the comparative efficacy of various systems of care, with a particular focus on findings that targeted primary care providers and minority populations (such as African Americans and Hispanic/Latinos) at high risk of diabetes-related complications.

The information obtained from the literature review and environmental scan will be used to construct a formative research plan. This plan will include educational messages and message concepts for printed materials and communication products. Next, dissemination channels will be identified and specific audiences targeted, also on the basis of findings from the literature review and environmental scan.

We have found that oral health is one of the least-discussed topics in the literature of diabetes and its complications. Yet diabetes patients who develop severe periodontitis have greater difficulty maintaining proper glucose control. Because of tooth loss and oral pain or discomfort, a diabetes patient who has begun to experience oral complications may select foods that are softer and easier to chew; such foods are often higher in carbohydrate content, however, and they often exacerbate the difficulty of maintaining blood sugar levels and therefore do further damage to the patient's body.

In summary, the environmental scan identifies elements in the larger environment that influence, for good or ill, the selected audience segments (Hispanic/Latino and African American populations and diabetes care professionals). The scan also suggests directions for future research on more effective means to communicate health information on the oral complications of diabetes to those audience segments.

I. Background and Scope of Work

The following section will provide a brief background on diabetes, oral health complications, and minority populations (for a full discussion and analysis of these issues, please refer to the accompanying literature review). It will also describe the scope of work for this project and preview the sections of this report.

A. Diabetes and Its Complications

Diabetes places a significant burden on the U.S., where an estimated sixteen million people have diabetes. Over three-quarters of a million people are newly diagnosed with diabetes each year. A projected 5.5 million people – one-third of those estimated to have diabetes – remain undiagnosed. As the seventh¹ leading cause of death in the United States, diabetes is also a major cause of morbidity, even disability, in an otherwise potentially healthy population. Diabetes is the leading cause of new cases of blindness in adults aged 20 to 74 years; it takes the lead in causing chronic, irreversible, end-stage kidney disease; and it is the primary cause of lower-extremity amputations not related to injury.

Diabetes was recognized as early as 3,000 BC. But an exact etiology remains elusive, and no cure has yet been found.

Ancient Indians from the fourth century B.C. called diabetes "madhumeha." These people are said to have noticed ants gathering around the urine of diabetics, so perhaps the ants deserve credit for discovering the sweetness of diabetic urine.

For those who already have Type 2 diabetes, a secondary prevention routine involving management of blood glucose levels through a combination of physical activity, proper nutrition, oral tablets and/or insulin and regular dental, eye, and foot exams, is critical for preventing diabetes-related complications, such as blindness, nerve damage, circulation problems, infections, and amputations, as well as

complications less well known to the public, such as periodontal disease, tooth loss, dry mouth, and dental abscesses.

The word diabetes is Greek for passing through, because Greek doctors noticed that diabetics drank and urinated quite a bit. And the word insulin is Greek for island. The groups of islet cells in the pancreas that are responsible for making insulin and other hormones look like tiny islands under a microscope.

Early detection of diabetes is important because initiating an early treatment of the disease may postpone its major complications. Accompanying the increased prevalence of diabetes is an increase in the number of complications attributed to a disease that can affect every organ of the body. Poor glycemic control can lead to heart disease, stroke, blindness, kidney disease, amputations, and dental disease. Oral health complications will be the focus of this environmental scan.

¹ sixth when heart disease and stroke together are computed as "cardiovascular disease"

B. Oral Complications

People with diabetes are at higher risk for such oral complications as periodontal disease, tooth loss, dry mouth, and dental abscesses. The two most common forms of periodontal disease are gingivitis and periodontitis. Gingivitis, an early and reversible condition, is an inflammation of the soft tissues surrounding the teeth. When gingivitis is not controlled, it can progress to periodontitis, which can lead to tooth loss. Periodontal disease occurs when a bacterial infection causes the tissue surrounding the teeth to degrade. Periodontitis is a progressive inflammatory condition that destroys periodontal ligament fibers and alveolar bone and can eventually lead to tooth loss.

Periodontal disease is widely prevalent. Forty to 50 percent of U.S. adults report gingival bleeding, and more than 80% of adults have objective evidence of previous periodontal disease. Among people with poorly controlled diabetes, the prevalence of periodontal disease is considerably greater than it is among their nondiabetic peers. The severity of periodontal disease is also usually greater among people with diabetes. Not only does diabetes exacerbate periodontal disease, but conversely, periodontal disease affects diabetic glucose control. Recent studies strongly indicate that periodontitis can also worsen diabetes. Thus, patients who develop severe periodontitis as a result of their diabetes often have difficulty maintaining proper glucose control. Because of tooth loss and oral pain or discomfort, a diabetes patient who has begun to experience oral complications may select foods that are softer and easier to chew. But such foods are often higher in carbohydrate content, and therefore may exacerbate the difficulty of maintaining blood sugar levels, consequently doing further damage to the patient's body. It has accordingly been recommended that diabetic patients consume high-fiber diets because such a diet has been shown to have a beneficial effect on blood sugar levels.

By obtaining information on the patient's oral health behaviors, the primary health care provider can screen the patient for periodontal disease risk. The keys to preventing periodontal disease are:

- Good oral hygiene, brushing and flossing at least twice a day.
- Regular dental care, check-ups every six months (more frequently for patients with periodontal disease)
- Good glycemic control, as poorly controlled diabetes can invite or promote periodontal disease.

Although persons with diabetes are at increased risk of developing severe periodontal disease, the percent of adults with diabetes who are receiving annual dental examinations is smaller than for the general, non-diabetic population. In 1997, only 58 percent of persons aged 2 years and older with diagnosed diabetes had seen a dentist at least once in the preceding 12 months. The Healthy People 2010 national objective on oral health is to increase the proportion of persons with diabetes who have at least an annual dental examination to 75 percent.

C. Diabetes, Prevention and Minority Populations

Diabetes occurs in all populations, but American Indian, Hispanic/Latino, African American, Asian American, and Pacific Islander populations are disproportionately affected. Diabetes is the sixth-leading cause of death among American Indians. An estimated 47,000 American Indians in the U.S. have diabetes, and they are 10 times more likely than other Americans to develop diabetes. Among Hispanic Americans the problem is also severe. Approximately 1.8 million Hispanic Americans over age 20 have diabetes, and they are on average twice as likely to have diabetes as non-Hispanic whites of the same age. Approximately 2.3 million African Americans age 20 or older have diabetes, and it is the fifth-leading killer of African Americans ages 45-64. Among Pacific Islanders, diabetes is twice as likely to occur in native Hawaiian as in white Hawaiian populations. Recent research also shows that the incidence of diabetes is rising among Asian Americans and Pacific Islanders.

The implications of this new research for implementing interventions with ethnic and racial minorities are clear. First, cultural groups may differ in terms of the prevalence of such risk factors as being overweight; being age 45 or older, or under age 65 with little or no physical activity during a usual day; having a parent or sibling with diabetes; having been told one has high blood sugar but not diabetes; and, for women, having delivered a baby that weighed more than 9 pounds at birth, or having had diabetes during pregnancy. Likewise, culture is likely to mediate views of what constitutes “proper” diet and exercise, as well as of what body images are most appealing; also, culture dictates norms about the kinds of food prepared and how that food is prepared. Appropriate channels and spokespersons will also surely differ by culture. Understanding those differences is essential to the crafting of effective communication messages.

D. Diabetes and CDC

As part of the National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, the Division of Diabetes Translation seeks to eliminate the preventable burden of diabetes through leadership, research, programs, and policies that translate scientific understanding into preventive practice. The division works to achieve the goal of reducing the burden of diabetes by supporting public-health-oriented diabetes control programs (DCPs), and by translating the finding of diabetes research into widespread clinical and public health practice.

Because minority populations experience higher rates of diabetes and diabetes complications, the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH) have launched the National Diabetes Education Program (NDEP). The purpose of NDEP is to “improve the treatment and outcomes for people with diabetes, to promote early diagnosis, and ultimately to prevent the onset of diabetes.” This is to be accomplished by means of media campaigns that target people disproportionately affected by diabetes: the elderly, African Americans, Native Americans, Hispanic Americans, and Asian Americans/Pacific Islanders. To achieve the goal of reducing morbidity and mortality associated with diabetes and its complications, NDEP has identified several objectives: to increase public awareness of diabetes risk factors and of ways to prevent diabetes and complications; to promote self-management behaviors among diabetes patients; to improve health care providers' knowledge of diabetes, and

create a system for an integrated approach to care; and to encourage policies which improve and promote access to health care.

DDT also provides funding for state-based diabetes control programs (DCPs) in all 50 States, the District of Columbia, and eight U.S.-affiliated jurisdictions. Core capacity-building activities emphasize developing state health department expertise to plan, design, and coordinate diabetes control activities. Sixteen DCPs receive expanded funding to establish comprehensive programs, so they can implement statewide, multilevel public health approaches to reduce the burden of diabetes. The primary goal of the state-based DCPs is to improve access to affordable, high-quality diabetes care and services, with priority on reaching high-risk and disproportionately affected populations.

The implications of this new research are far reaching for CDC and the DCPs. Heretofore, and despite considerable interest by all in primary prevention, most of the efforts of DDT through DCPs have emphasized the definition of burden and secondary prevention. For example, national objectives set by DDT two years ago emphasize the prevention of complications through timely foot exams, eye exams, *timely oral care*, appropriate immunizations, and HgA1c tests. This new research reinforces the existing interest of DDT and DCPs in primary prevention approaches but considerably broadens the target populations on which they must focus and the *partnerships that must be formed if interventions are to be effective*. Hence it is essential that good formative research be done to isolate the most effective ways to motivate initiation and maintenance of healthy behaviors by those at risk for diabetes complications.

E. Tasks of the Project–Diabetes Complications

As stated earlier, the key tasks of the overall project fall into three phases. The first phase involves conducting a literature review and an environmental scan, then developing a formative research plan on the basis of their findings. That formative research aims to isolate the most effective ways of motivating those at risk for diabetes to initiate and maintain healthy behaviors. In the second phase, the formative research plan will be implemented; specifically, the plan will study knowledge, attitudes, beliefs, and behaviors of the target audience and high-risk minority populations with respect to making the lifestyle changes that can prevent diabetes. The final phase of the project consists of planning and evaluating a communication intervention.

F. Oral Complications of Diabetes–Environmental Scan

The purpose of the environmental scan is to identify elements in the larger environment that influence, for good or ill, the outcomes of intervention programs. While some information relevant to an environmental scan did emerge from our literature review, we needed to go beyond the scientific literature to gain a sense of events in media, political, and social environments, and to determine how this information differs for various audience segments. Moreover, there is a time lag between the published literature and current trends in the media, political, and social environments.

More research needs to be done to fully understand the efficacy of efforts to prevent oral health complications caused by diabetes; the impact of diabetes patients' knowledge, attitudes, and behaviors on these preventive health care regimens; and the role of benefits, barriers, and motivators in efforts to encourage patients to follow such regimens.

Because we recognize that CDC is not the only agency creating efforts in these health arenas, another important element of the environmental scan was to identify efforts by other agencies to reduce oral complications due to diabetes. By identifying these agencies and documenting their efforts, CDC can determine which elements are lacking and target their intervention resources to create supplemental, nonduplicative interventions. CDC will also be able to determine partners with resources; efforts can then be combined so as to achieve synergies.

Therefore, the environmental scan consisted of two major components:

- *Interviews* with CDC staff, dental professionals, and key national minority organizations using a discussion guide with themes that emerged during the literature review and during the construction of a logic model on oral health complications.
- *Media analysis* (print and internet sources) of Internet Web sites and listservs helped to identify new trends and issues and to confirm that already-identified issues were relevant.

As part of our *synthesis of the environmental scan* on the oral health of Hispanic/Latino and African American populations, we *identified and made recommendations for addressing any emerging psychosocial trends that might enhance or threaten potential programs*. To assist in the interpretation of findings from the environmental scan, we used a theoretical framework in the form of a logic model (see Appendix A). The dimensions examined in this model were audiences, inputs, activities, effects of barriers and enablers, and health outcomes for oral health complications of diabetes. The report will provide CDC with information needed to formulate a research plan to *determine where interventions and programs can make a difference or make the greatest difference*. This formative research is conducted during the current planning stages of program development, and will form the basis for behavioral goals, interventions, and subsequent evaluation.

II. Methods—Data Capturing

The following section will detail the methods used to request, delineate and obtain data from various sources on the environmental scan. The diversity of sources was obtained by triangulation methods and continuous cross-fertilization with the other deliverables of this task, namely the annotated bibliography and the subsequent literature review.

A. Literature Review Findings

Focusing on materials related to diabetes and its complications, the literature review revealed several issues pertinent to the environmental scan on oral health. The relevant findings are listed as follows (for summary tables, see Appendix B; for a full discussion of these findings, see the accompanying literature review document):

- Risk factors for developing both diabetes and diabetes-related complications have been identified in the scientific literature. It is important to educate both general and minority populations about how to reduce these risk factors, how to identify signs of complications, and how to manage their diabetes and diabetes-related complications. This is most effectively done in the local community, and delivered in a simple, easy-to-follow manner with hands-on demonstrations.
- To effectively target minority populations for diabetes education, it is important *to utilize community members and resources*. In addition, education classes should be conducted at a time and in a place that is convenient for the patient.
- Targeting the *primary diabetes health care provider for diabetes education* is an essential entry point for disseminating information to the patient. By changing the knowledge, attitudes, and behaviors of physicians in their diabetes care practices, we will be able to indirectly influence the knowledge, attitudes, and behaviors of patients with diabetes. To increase participation, these education classes can be kept as short as one hour.
- By making changes to the *systems which deliver care* (single change or multidisciplinary change), the provider's diabetes care practices are directly affected and can be positively improved. For example, if a *critical pathways approach* to diabetes foot care is integrated into the system of providing care, physicians are more likely to conduct foot screenings and make appropriate referrals based upon the status of their patient's foot. This could lead to better foot health outcomes for the patient.

B. Interviews

Derived from the literature review and the logic model, themes related to diabetes and oral health were used to formulate discussion guide questions (see Appendix C for a list of questions and prompts). These conversations with CDC staff, dental professionals, and key national minority organizations were meant to cross-check what was found in the literature review and to further identify trends and environmental factors. A list of key agencies and organizations to be contacted was approved by the CDC Technical Monitor (see Appendix D for a list of organizations contacted). A screening script was used to contact potential interviewees, with a list of questions to guide the discussion. With these questions used as categories/themes, data were recorded in the form of interview notes. Interviewees were asked to forward any other contact, materials or questions to the research team.

1. Data Analysis

Notes were taken at each interview, and these data were analyzed collectively using a set of pregenerated identified themes within specified categories. Also used to guide the analysis were any key differences among the interview responses. Additional topics/themes identified in the course of interviewing were added as applicable.

The following table presents the topics/themes by which our analysis of the interviews was guided:

IGEN OHC	Interviewee's general knowledge oral health complications of diabetes.
KABB OHC Patients	Knowledge, attitudes, beliefs, and behaviors oral health complications of patients with diabetes and their families.
KABB OHC ND C Providers	Knowledge, attitudes, beliefs, and behaviors oral health complications of nondental care providers.
KABB OHC D C Providers	Knowledge, attitudes, beliefs, and behaviors oral health complications of dental care providers.
P/I OHC	Programs and interventions in oral health complications of diabetes.
FC Support	Family and community support to patients with diabetes.
PP I/A	Potential partners for interventions/approaches.
Factors PI HCS	Factors with partners for interventions in health care systems.
Factors PI NDCP	Factors with partners for interventions with non-dental care providers.
Factors PI DCP	Factors with partners for interventions with dental care providers.
Factors I P	Factors for interventions with patients with diabetes.
Specific Research TP	Specific research/interventions on target populations.
Trend data	Other trend data that might enhance or threaten future research or interventions activities.

2. Findings

Data gathered from the interviews were integrated into the findings discussed in this report and in the recommendations section.

C. Media Searches

The environmental scan on oral health relied heavily on findings of a *media analysis* (both print and Internet sources). The Internet, with its World Wide Web sites and listservs, provided a means of identifying new trends and issues, and of confirming that already-identified issues are relevant. Also included and listed in the scan were Web sites with coverage of diabetes and its complications, and of relevant health care information. Because the Internet contains no central indexing system, getting the information researchers need can be a major challenge. Specialized search engines and software programs are powerful tools that helped narrow the field. The search categories used were “diabetes” and “oral complications.”

The software programs used were:

- Copernicus 2000, a metaresearch tool that places the most relevant result at the top of a result report generated in seconds and free of duplicates. Has access to 80 search engines grouped into 7 categories.
- CDC Prevention Database.
- CHID Online (Combined health information database) from NIH.

Other online search engines used were:

- MEDLINE, at www.ncbi.nlm.nih.gov/pubmed, from the Library of Medicine. A collection of over 11 million bibliographic citations to the world's medical journals. Aimed at health care professionals.
- MEDLINEplus (health information), at www.medlineplus.gov, also from the National Library of Medicine. A private consumer-friendly source of health information, news, lists of hospitals and physicians, encyclopedia, directories, and several easy-to-read dictionaries.

III. Synthesis of Findings

This section will discuss findings of the environmental scan as they relate to diabetes-related information found online, and data on political/policy, and consumer trends.

Overall, results of the scan corroborate literature review findings about the oral complications of diabetes. Specifically, both the review and the scan reveal a lack of information on African Americans and Hispanic/Latinos with diabetes and periodontal disease. This lack of information contrasts with a relative abundance of information on diabetes and its oral complications among Pima Indians from the Native American minority population. Also, our findings reveal the synergistic relationship between diabetes and oral health (a relationship little known by the public), and confirm the connection between poor oral health and systemic diseases. Those diabetes patients who are more susceptible to developing periodontal disease also have poor oral hygiene behavior, which parallels their poor glycemic control. In fact, diabetes patients who received treatment for their gum disease subsequently showed a reduced need for insulin. Periodontal disease is the most prevalent oral complication in type 1 and type 2 patients, so much that it has been labeled the “sixth complication of diabetes” (Loe, 1993). Case reports suggest a strong relationship between rapid periodontal breakdown and elevated blood glucose levels (Loe and Genco, 1995).

Finally, despite the fact that recommendations for oral care for people with diabetes include biannual checkups and a self-management regime (brushing and flossing teeth, and controlling blood glucose), our scan showed that such recommendations were not always present in patient educational materials, patient flowcharts, or algorithms of diabetes care. By contrast, such information was provided in recommendations to diabetes patients to maintain annual dilated eye exams and screening for foot complications. Please see Tab 7 and 8 of the binder for collected samples of these materials.

A. Diabetes Information Online

There are literally thousands of diabetes-related Internet resources maintained by government agencies, universities, and nonprofit and commercial organizations as well as by private individuals. The diabetes health information found available online was categorized as listed below, according to the audience targeted.

Issues and Audience/Level of Influence Targeted

Issues and Themes identified	Systems of Care	Diabetes Care Team	Patients, Caregivers and Family
Latest news services and emailed alerts		x	x
Federal Government Agencies: CDC, NIH-NDDK, Diabetes Control Programs, FDA, HHS	x		
State Health Departments	x	x	
Diabetes organizations <ul style="list-style-type: none"> National and Regional Professional and Lay 	x	x	x
Diabetes Support Groups		x	x
Research	x	x	
Prevention/screening	x	x	x
Diabetes Clinical trials	x	x	x
Diagnosis/Symptoms		x	x
General informational overviews of diabetes and complications; patient education materials		x	x
Disease Management <ul style="list-style-type: none"> Treatment Healthy behaviors Life-management skills 		x	x
Treatments, Treatment Centers		x	x
Alternative therapy for diabetes * herbal medicines		x	x
Nutrition, sugar-free recipes, Dietitian's advice, dietary supplements, low-fat diets, eating disorders	x	x	x
Diabetes supplies <ul style="list-style-type: none"> Insulin, pumps, shoes, skincare products, blood glucose meters 	x	x	x

Issues and Themes identified	Systems of Care	Diabetes Care Team	Patients, Caregivers and Family
Coping with daily stressors <ul style="list-style-type: none"> • Stress and glucose regulation • Depression • Handling sick days 		x	x
Specific Conditions/aspects/groups <ul style="list-style-type: none"> • Women • Teens • Elderly • Immunization • Sexual Disorders • Traveling with diabetes • Spanish-speakers 	x	x	x
Software packages on data abstraction from medical records, treatment guidelines and for self –management skills		x	x
Dictionaries/Glossaries		x	x
Directories	x	x	x
Discrimination and diabetes	x		x
Law and policy	x		

Please refer to Appendix E and F for complete listing and addresses of listserves for mailing lists, Web sites, and chat rooms. These lists are by no means exhaustive or complete, because sites may be periodically revised and some will, for a variety of reasons, die out. *Indeed, such changes speak to the nature of the medium and demonstrate the need to expand upon traditional means of communicating information, to include up-to-date and agile strategies for disseminating messages via the Internet.*

B. Trend Data

1. Political/policy

There is a heavy and disproportionate concentration of dental disease in poor, racial/ethnic minority, Native American, Hispanic, and immigrant subpopulations. The existence of such a correlation means that any intervention addressing health disparities in oral health and diabetes needs to take account of the political/policy context of a variety of broad federal initiatives. The following are descriptions of some of those broad initiatives:

a. Special Initiative on Race

President Clinton announced this initiative in June 1997 in response to the need for a Federal focus on racial and ethnic minority disparities in this country. Healthy People, the national health promotion and disease prevention agenda, identifies significant preventable threats to health and focuses public and private sector efforts to address those threats. Healthy People 2010 (HP2010) was developed through a broad consultative process involving the community, and represents the United States' contribution to the World Health Organizations's *Health for All* strategy.

Healthy People 2010: Eliminating health disparities and improving access to dental care are two of the strategies for HP 2010. This plan for improving the nation's health focuses on increasing quality and years of healthy life and eliminating health disparities. The objectives for 2010 are to focus on health promotion and disease prevention, and to build an infrastructure and capacity to serve low-income populations. Oral health is integrated into 20 of the 28 focus areas for HP 2010. Moreover, there are 17 objectives focused on improving the oral health of the nation. Thus HP 2010 recognizes that oral health is an integral component of health throughout life, and that no one can be truly healthy unless he or she is free from the burden of oral and craniofacial diseases and conditions.

The following table lists the HP2010 objectives of particular relevance to our environmental scan of oral health and diabetes in at-risk populations:

HP2010 Objectives of Interest to African Americans and the Hispanic/Latino Populations in Diabetes and Oral Health:

Order ID	Objective
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01-03	Increase the proportion of persons appropriately counseled about health behaviors.
01-04	Increase the proportion of persons who have a specific source of ongoing care.
05-01	Increase the proportion of persons with diabetes who receive formal diabetes education.
05-02	Prevent diabetes.
05-03	Reduce the overall rate of diabetes that is clinically diagnosed.
05-04	Increase the proportion of adults with diabetes whose condition has been diagnosed.
05-15	Increase the proportion of persons with diabetes who have at least an annual dental examination.
21-05	Reduce periodontal disease.
21-10	Increase the proportion of children and adults who use oral health care system each year.

b. US Department of Health and Human Services (HHS)

The HHS Initiative to Eliminate Racial and Ethnic Disparities in six areas of health status, inclusive of diabetes. Information from HHS can be found at www.raceandhealth.hhs.gov, as well as on the Web site of the Office of Minority Health, HHS, at www.omhrc.gov.

HHS - Office of Minority Health

The OMH was created by in 1985 as a result of the *Report of the secretary's task force on black and minority health*. The OMH as established legislatively by Congress in 1990 and reauthorized by the Health Professions Education Partnerships Act of 1998 (Public Law 105-392). The OMH is located within the Office of the Secretary of HHS, Office of Public Health Science. The OMH collaborates with agencies within the HHS and their minority health representatives to ensure that the needs of disadvantaged populations are being addressed across the Department. Also, OMH works closely with its established counterparts at the State level, and it provides technical assistance as requested to minority community groups endeavoring to establish similar entities within their own States.

- 1) OMH helps minority communities reach a high level of health and wellness. It works to eliminate discrepancies in health status between minority and non-minority populations. In particular, OMH made funds available at FY2001 for the Bilingual /Bicultural Service Demonstration Grant program, which will target 21 health areas among the focus areas for Healthy People 2010: diabetes and oral health are two of these areas. Since 1993, this demonstration program has aimed at building communication bridges and reducing barriers to care for members of LEP communities. It has offered funding for demonstration projects that coordinate efforts with community-based organizations to offer activities and services for LEP people, many of whom are members of racial or ethnic populations. Applications to the 2001 OMH Grants Management Office are due by May 18, 2001.
- 2) The Regional Minority Health Coordinators (RMHCs) serve as the OMH's direct representatives in 10 HHS regional offices. They serve as the point of contact for Federal, State, and local collaboration, technical assistance, and information exchange.
- 3) The Congressionally-mandated Center for Linguistic and cultural competence in Health care (CLCCH) is being developed to address language barriers in the health system faced by limited English-speaking populations. Activities supported include the development of a comprehensive research agenda for culturally and linguistically appropriate health care services. During September 2001, in Washington, DC, OMH will convene the National Leadership Summit on Eliminating racial and Ethnic Disparities in Health. The goal of this summit is to mobilize leaders of community organizations to participate in the national agenda to eliminate racial and ethnic disparities in health.

- 4) OMH Resource Center. The OMH information and education programs are housed at the Office of Minority Health Resource Center (OMHRC), a national resource and referral service on minority health. Established in 1987 by the OMH and the US Department of Health and Human Services, OMHRC collects and distributes information on a variety of **health topics**. These include cardiovascular disease, substance abuse, cancer, violence, *diabetes*, infant mortality, and HIV/AIDS. Its **target populations** are *African Americans*, American Indians/Alaska natives, Asian Americans, *Hispanic/Latinos*, native Hawaiians, and other Pacific Islanders. Its main **publication**, *Closing the Gap*, is a 16-page newsletter covering minority health research, programs, and other activities; the newsletter has also reported on topics related to cultural competency and oral health. Another select publication is the *Pocket Guide to Minority Health Resources*, a reference guide in print form that provides information on minority health resources available to the public. Updated annually and aimed at consumers, professionals, and organizations, this guide details sources of information on various health-related topics and lists associations and Federal clearinghouses, as well as OMH regional minority health consultants and State minority health contacts.

Free **services** provided by OMHRC include profiles of minority health programs and organizations, brochures, articles, and reports. OMHRC can send the latest health statistics, and can perform customized database searches for possible funding opportunities from foundation, pharmaceutical, and insurance organizations, as well as Federal, State, and local agencies. Finally, they can link requests with members of the *Resource Persons Network*, a group of minority health experts who provide technical assistance to organizations on a volunteer basis. Examples of network member activities are speaking at conferences, reviewing grants, and offering advice on minority health programming.

- 5) HHS-OMH National Standards for Culturally and Linguistically Appropriate Services (CLAS). The National Standards for Culturally and Linguistically Appropriate Services (CLAS) in health care were issued in December 2000 by the US Department of Health and Human Services' (HHS) Office of Minority Health (OMH). The national standards are the collective set of mandates, guidelines, and recommendations intended to inform, guide, and facilitate required and recommended practices related to culturally and linguistically appropriate health services; these standards will help to ensure that all people entering the health care system receive equitable and effective treatment in a culturally and linguistically appropriate manner. For policymakers, the CLAS standards can help draft consistent and comprehensive laws, regulations and contract language. Although the standards are intended to be inclusive of all cultures and not limited to any single population group or sets of groups, they are designed to address the particular needs of racial, ethnic, and linguistic population groups that experience unequal access to health services. Ultimately, the aim of the standards is to contribute to the elimination of racial and ethnic health disparities and to improve the health of all Americans. The 14 CLAS standards are organized by themes: *Culturally Competent Care* (standards 1-3), *Language Access Services* (standards 4-7), and *Organizational Supports for Cultural*

Competence (Standards 8-14). The three types of standards of varying stringency - mandates, guidelines, and recommendations – are defined as follows:

CLAS *mandates* are current Federal requirements for all recipients of Federal funds (Standards 4-7);

CLAS *guidelines* are activities recommended by OMH for adoption as mandates by Federal, State, and national accrediting agencies (Standards 1-3,8-13); and

CLAS *recommendations* are suggested by OMH for voluntary adoption by health care organizations (Standard 14).

The whole set of CLAS Standards can be found at www.omhrc.gov/clas/frclas2.htm. Please refer to Appendix G for the listing of standards.

HHS - Office of Civil Rights

HHS, through the office for Civil Rights, promotes and ensures that people have equal access to and opportunity to participate in and receive services in HHS programs without facing unlawful discrimination. Specifically relevant to some minority groups, President Clinton's Executive Order 13166 of August 2000 called for Improving Access to Services for Persons of Limited English Proficiency (LEP) and the enforcement of the responsibilities of recipients of Federal financial assistance from HHS, pursuant to Title VI of the Civil Rights Act of 1964. Such recipients include hospitals, managed care providers, clinics and other health care providers as well as social service agencies and other institutions or entities that receive assistance from HHS. This guidance addresses the fact that LEP persons can and often do encounter barriers to health and social services at nearly every level within such programs. The language barrier faced by LEP persons in need of medical care and /or social services severely limits their ability to gain access to these services and to participate in these programs. The language barrier often results in the denial of medical care or social services, delays in the receipt of such care and services, or the provision of care and services on the basis inaccurate or incomplete information.

c. National Institute Of Health (NIH) Strategic Plans On Minority Health Disparities

NIH has developed a five-year NIH Strategic Research Plan to Reduce and Ultimately Eliminate Health Disparities. The plan is focused on three major areas: *research, research infrastructure, and public information and community outreach*. Within NIH, these institutes have specific tasks:

NIH-NIDDK

National Institute of Diabetes and Digestive and Kidney Diseases conducts and supports research on many chronic and costly diseases affecting the public health. The Division of Diabetes, Endocrinology and Metabolic Diseases is the section responsible for, among other matters, extramural research on and research training related to diabetes mellitus.

The Division of Digestive Diseases and Nutrition has responsibility for managing research programs related to nutrient metabolism, obesity, eating disorders and energy regulation. In relation to reducing health disparities, the NIDDK strategic plan cites as goal #2 of its first area of focus (Diabetes) to prevent or delay the development of the complications of diabetes in minority populations. To that end, NIDDK is collaborating with CDC on TRIAD (Translating Research Into Action for Diabetes), a study to examine the effectiveness and cost benefits of improved quality of diabetes care, as well as its impact on the quality-of-life and health status of people with diabetes in managed care settings.

As for public information and outreach, NIDDK aims to expand diabetes education and outreach to populations disproportionately affected by diabetes, such as African Americans and Hispanic Americans. To that end, NIDDK has expanded its efforts by means of the NIDDK “Control your Diabetes. For Life” media campaign and by means of community interventions that are culturally and linguistically appropriate for the minority audiences they target.

NIH-NIDDK National Diabetes Data Group (NIDDK)

The NIDDK was established in 1977 in response to recommendations of the US National commission on Diabetes. Its purposes are to identify the information that is needed to address the important scientific and public health issues in diabetes, to facilitate and conduct research on the epidemiologic and clinical aspects of diabetes, and to develop reliable and accurate information on the scope and impact of diabetes in the US population. The group produced the much-cited reference Diabetes in America (1995), now in its second edition.

NIH National Diabetes Information Clearinghouse (NDIC)

The NDIC was designed to disseminate information about diabetes and its complications to health professionals, patients, and the public. NDIC developed a Spanish-language series of booklets, aimed at minority populations, on recommended practices for people with type 2 diabetes.

NIH National Oral Health Information Clearinghouse (NOHIC)

The NOHIC is housed at the National Institute of Dental and Craniofacial Research (NIDCR), serves as a resource for practitioners, educators, patients, and other members of the public seeking information about oral diseases and condition, therapies, and prevention strategies related to special care in oral health. NOHIC sponsors the Oral Health Database,

a component of the Combined Health Information Database (CHID). This database includes bibliographic citation, abstracts, and availability information for a wide variety of print and audiovisual materials.

NIH-National Center on Minority Health and Health Disparities

NIH's newest center received his first Director, Dr. John Ruffin this January 9, 2001. This Center aims to address health disparities in racial and ethnic populations and in other populations with health disparities.

d) Congressional Hispanic Caucus – Budget Priorities for FY 2000

The Caucus secured funds on health issues for various organizations: at CDC, for demonstration projects within the "Race/Ethnicity and Health Disparities Initiative," aimed at establishing more partnerships in cities with high minority populations; at CDC–National Center of Health Statistics, to increase funds for the data collection of underserved subpopulations, such as Hispanics, in order to bolster the HHS Race/Ethnicity and Health Disparities Initiative; for the OMH, to establish funding for a new OMH Cultural Competence Center for targeted research to better understand and address the health status of Latinos; for the Health Care Financing Administration (HCFA), to ensure that national and State programs (Medicaid/Medicare/HIP) conduct culturally-competent, language-sensitive outreach to minority communities.

2. Consumer Marketplace (Recent Trends In Electronic Media)

a) Issues of Quality of Health Information Online

Although the variety of Internet search engines and software tools can lead to massive amounts of information, those tools are incapable of evaluating the links they identify. For example, a search on the words of a major disease like diabetes and its complications is as likely to lead to a page advertising supplies or a health food store's article on the purported benefits of a chemical as it is to the CDC. One reason for this information overload is that, as research has shown, seeking out health information is among the most common reasons people cite for using the Internet. (Larkin)

By far the most consumer-friendly part of the Internet is the World Wide Web. It is also the newest part of the Internet, having become accessible only in the past decade, with the wider availability of browsers such as Netscape Navigator and Internet Explorer. While the rest of the Internet displays text only, the Web, as it has come to be called, has the ability to display colorful graphic and multimedia to complement text-based information. The growth of the Internet coincides with increased consumer involvement in decisions about health care. A key component of increasing consumer choice and participation is access to good quality information. Good quality information on treatment choices should be accurate and based on the best and most up-to-date scientific evidence. Providing consumers with

information about treatment choices can reduce anxiety and promote more effective relationships with health professionals. Consumers who participate in decisions about their treatment may have improved health outcomes, and an understanding of treatment choices has been shown to have a positive effect on health status independent of participation in the decision-making process. Many legitimate providers of reliable health and medical information, such as government agencies, are taking advantage of the Web's popularity by offering brochures and in-depth information on specific topics at their Web sites. Material may be geared to consumers as well as industry and medical professionals. The Internet has expanded the range of information available to consumers. However, the lack of editorial control has raised concern about the quality of online health information. Who is to say whether the information consumers and patients obtain is reliable? Can it be trusted if it sounds too good to be true? Who is accountable for the health information that is so easily accessible through the Internet?

There is a clear need for reliable appraisal tools and mechanisms to evaluate online health information on treatment choices; those tools and mechanisms must be accessible to diverse groups of users and applicable to a wide range of information. While numerous guidelines and checklists for evaluating and producing internet resources are available, few are health-specific, and few have been subjected to rigorous scientific testing.

A single icon appears on some Web sites than on others. This is the HON Code from the Health On the Net Foundation (www.hon.ch) based in Switzerland.



As cited, the HON code proposes benchmarks designed to make sure readers always know the source and purpose of the information they are reading. While not rating the medical accuracy, validity, or appropriateness of the information itself, the HON code seal on sites aims to that webmasters and information providers can themselves apply the HON code to set basic standards for the presentation of health care advice and information. Self-regulation represents a temporary solution at a time when there is still no common legal framework for the provision of health care information on the Internet.

Closer to home and for a more standardized process, an independent health care standards group, American Accreditation Healthcare (URAC), has released preliminary quality standards for health-related Web sites; released this February, these standards cover topics ranging from privacy and security to content. URAC (www.urac.org) is a US-based nonprofit organization that accredits managed care health plans and other health care organizations. The public comment period will last until April 23, 2001. After that date, the URAC's Health Web Site Advisory committee will review the comments and revise the draft standards as appropriate. URAC will then test the standards on several health Web sites. The results of these tests will be reported back to the Advisory Committee, which will further refine the standards. Finally, URAC's Board of Directors will consider the standards for final adoption. Once the standards are approved, they are complete and official. The expected completion date for the standards is the end of July 2001. The URC accreditation process involves much more extensive review and analysis of Web site

documentation and operations than the more common “self-certification” model. It is the rigor of the third-party accreditation process that gives credibility to the accreditation.

b) Access To Information Online: The Digital Divide

Public acceptance of new technologies generates a continuing need to assess the communications climate in minority populations. For example, there has been a steady growth of Hispanic/Latino populations online: almost in triplicate from 9% of Internet penetration rates for Latino households in 1997, to 30% in 2000. When they do not have access at home, Latinos are more likely to turn to public institutions to gain access to the Internet. Libraries, schools and community centers are the most commonly used public access points.

The "digital divide" refers to the lack of access of individuals and communities to computers and online resources, as well as to the skills to benefit from the opportunities that information technology (IT) brings. This divide exists along the lines of income, education, race and ethnicity, and geography (TRPI 2000). The current status of the digital divide as relevant to this environmental scan is described as follows:

Population	Computer Penetration	Internet Penetration
Hispanic/Latino	33.7%	23.6%
African American	32.6%	23.5%
White, non-Hispanic	51.0%	41.5%

Public access entry points vary in their needs and objectives and this is reflected in a wide variety of applications and software available to users. While most of the programs are geared towards word processing (88%), accessing email (84%) and improving computer literacy skills (80%), other important applications allow users to obtain *health care information* (48%). Email users report using those applications for more than just receiving, reading, writing and sending emails; they also use them as tools to *receive electronic newsletters*. Other uses of the Internet are *chatting online about special interests*, and researching information for both personal and work-related purposes. Yet a lack of computers at home, a lack of computer and Internet skills, and economic constraints conspire to hinder the access of minorities to the Internet. Variations in language preferences and other culturally-related factors are impediments to using the Internet.

From a recent study, two critical findings emerged from the analysis of the variation and similarities among Hispanic/Latino individuals (TRPI 2000). First, bilingualism is a critical factor for any serious discussion of Internet use in the Hispanic/Latino community. Second, Latinos want to protect the integrity of the Spanish language, which they consider to be the main symbol of their cultural identity. common findings across the research was a desire to have the option of accessing the Internet in English, Spanish, or both according to their current needs and motivations. Moreover, a critical reason why a large number of participants wanted to see Internet content offered in both languages was that there are

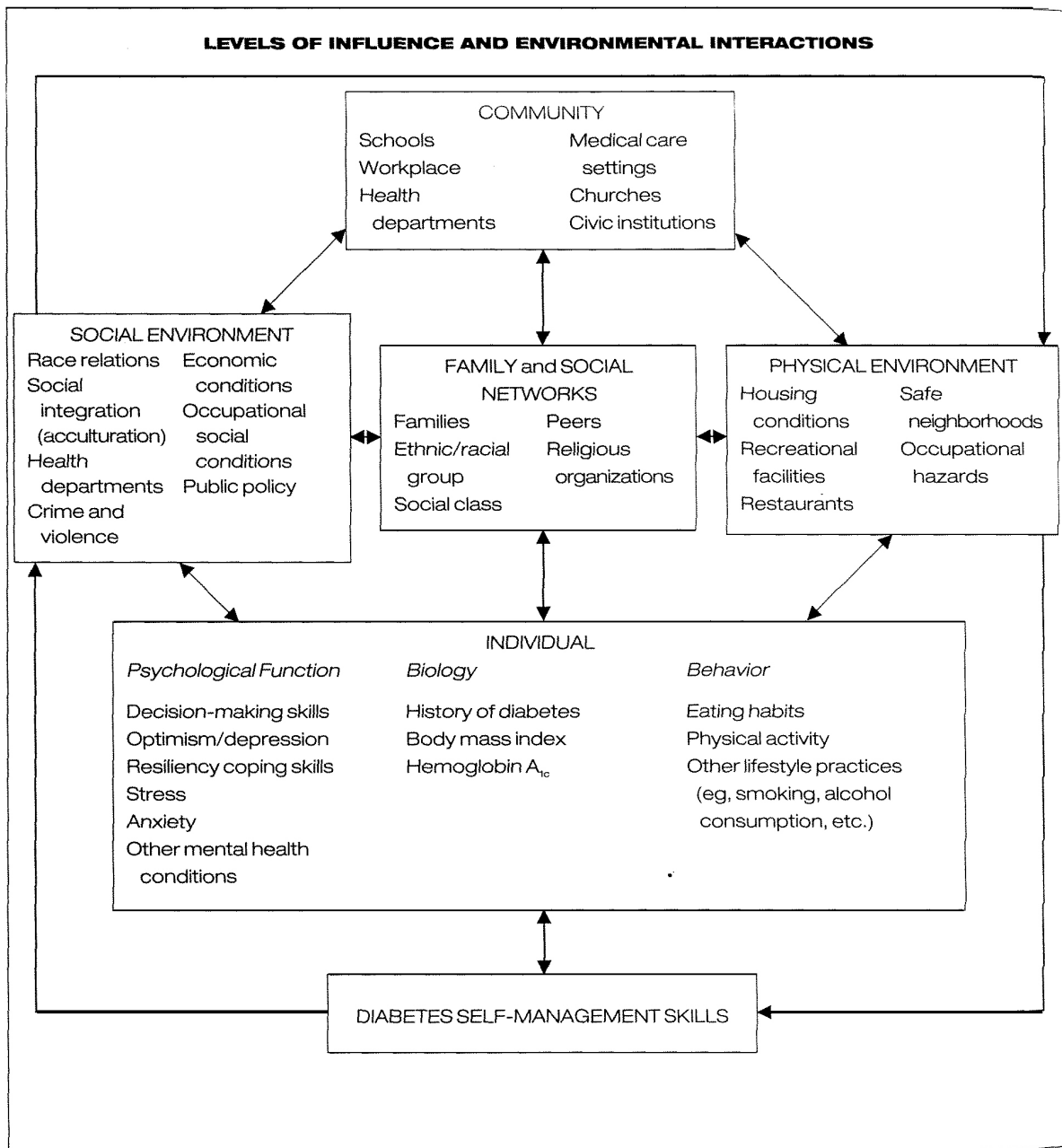
varied levels of English and Spanish language dominance, often within the same household. This suggests that facilitating access to information in both languages is a way to respond to the online needs of the Latino community. In summary, common findings suggest that, once online, *Latinos will certainly demand content sensitive to their language and needs*. This is mandatory to take into account when targeting this population for interventions that involve disseminating health-related information online.

C. Influence of Environmental Context On Diabetes Self-Management

To understand human behavior, behavioral research in general has focused primarily on individual risk factors from both biological and clinical-psychological perspectives (level of stress, anxiety, or depression). The individualization of risk has perpetuated the idea that risk is individually and not socially determined.

Diabetes self-management is influenced not only by biological characteristics of the disease but also patient's characteristics, social networks and health care resources, and provider-patient interaction, social conditions, and public policy (Jack et al 1999). Diabetes education research should examine not only traditional psychological measures (individual characteristics such as personality types, beliefs, attitudes, and sense of self-efficacy). It should also take into account factors such as acute stress, which has been shown to increase insulin resistance. Both non-disease-related and disease-related stress play a role in psychological well being, and these stressors can act as barriers to patients attempting to adopt the behavioral changes recommended by health care professionals.

Examples of models based on psychological principles are the theory of reasoned action, health belief models, personality models, social learning theory, and self-efficacy theories. Environmental context deals largely with the cumulative effect of human experiences, for example with housing conditions, racism, occupational hazards, employment status, availability of quality health care, availability of health care coverage, family and social network support, community violence, and acculturation. Therefore, diabetes research should reflect the various levels of influence that affect health outcomes. Specific characteristics of the community, family, social network, and individuals may serve as protective factors against cumulative environmental assault and the lack of favorable environmental conditions to support diabetes self-management. *The new approach to diabetes education calls for a comprehensive examination of those social and physical environmental factors that affect all levels of influence on diabetes patients' adherence to self-management skills.* Those levels of influence on diabetes self-management skills are as follows: the individual, the community and social environment, and the systems of care (see below summary table from Jack et al 1999). The new approach to diabetes education requires an integrated research agenda in which the relationships among macrosocial structures and processes, community institutions, socializing mechanisms, and individual characteristics are examined to determine how they ultimately affect health outcomes.



IV. Recommendations

The following section will discuss policy issues, potential partners, interventions, and examples of best practices, as well as the dimensions of a plan for a future communication intervention conducted on a sample audience. These recommendations are intended to guide discussions and work toward a formative research plan for delineating a more specific audience profile and for developing and disseminating messages. The research plan will set forth detailed objectives, target audiences, data to be collected, potential data sources, methods and instruments to be used, analyses and reports to be completed, and a timetable for all activities.

One important gain realized from the environmental scan on oral complications of diabetes is the amount usefulness of obtaining more information obtained via triangulation of methods, information not documented in the published literature. In particular, information about the association between oral infection (gum disease) and diabetes is valuable, since gum disease has already been addressed as “the sixth complication.” Patients with missing teeth experience a diminished quality of life. Not only do they have to limit their food choices because of chewing problems, a constraint that may result in poor nutrition, but also they feel a degree of embarrassment and self-consciousness that limits their social interaction and communication. In fact, already there is enough evidence indicating that treating gum disease improves diabetes control.

Results from the interviews indicate that patients with diabetes and their families/caregivers, as well as and nondental health care providers, have only a minimal awareness of the oral complications of diabetes. Patients appear to lack important knowledge about the oral-health complications of their disease. Cardiovascular, eye, and foot complications are the areas mostly addressed. *The environmental scan identified a need to further enhance the public’s understanding of oral health as a component of diabetes care, as well as a need for nondental professionals to be informed about oral health and disease and about their role in improving the oral health of patients with diabetes.* Research is needed into the oral health of diverse segments of the population, of racial and ethnic minorities, of rural populations, and of the elderly. In particular, action needs to take place at the three levels of influence, aiming to change

- ***individuals’ perceptions*** of oral health as a reflection of in health general and of oral complications of diabetes affecting minority populations, in particular
- ***nondental care providers’ perceptions*** about the interplay between oral health and blood glucose levels, to ensure patients with diabetes keep their mouths healthy as part of their diabetes care regimen
- ***policymakers’ perceptions*** of how critical it is to ensure the inclusion of oral health services in health promotion and disease prevention programs, care delivery systems, and reimbursement schedules.

Funding agencies will need to examine comprehensive approaches that extend beyond categorical perspectives and traditional research designs. Funding institutions like CDC need to go beyond categorical perspectives and provide the resources necessary to support

comprehensive, innovative approaches designed to address the complexity of public health problems, by means of scientifically sound research methods that often include nonrandomized, non-control-group designs and by means of qualitative and quantitative methods. There is a need for public and private funding agencies to collaborate to develop and implement cosponsored, comprehensive grant initiatives. Within categorical funding, resources and opportunities can be designated for research that adopts an ecological perspective that examines multiple determinants of a given disease across multiple levels of analysis, by means of innovative research designs.

Another important element of the environmental scan was to identify non-CDC efforts to reduce oral complications due to diabetes. By identifying the agencies and studying their efforts, CDC could determine what elements are lacking and aim its intervention resources at creating supplemental, nonduplicative interventions. CDC would then also be able to determine partners with resources, and efforts could be combined so as to achieve synergies.

As previously said, every stakeholder has a role in improving and promoting the oral health of patients with diabetes. Many stakeholders can participate in a continuous quality improvement cycle, a series of steps designed to enhance processes leading to improved patient and program outcomes. Steps may include the following:

- identify the opportunity for improvement
- collect data
- analyze the data
- choose an approach
- develop the concepts and processes
- implement, evaluate and improve interventions and programs.

Stakeholders identified were government (Federal and State), managed care (HMOs and State insurance companies), academia, the private sector, communities, and patients and their families and caregivers.

For the minority populations targeted in these tasks, potential collaborators may need to demonstrate the merit of programs that involve partnerships between minority community-based organizations and health care facilities in a collaborative effort to address cultural and linguistic barriers to effective delivery of health care service and increase access to effective health care for the limited-English proficient (LEP) population.

Taking one example in particular, for FY2001 the Office of Minority Health (OMH) made funds available to the Bilingual /Bicultural Service Demonstration Grant program. The program will target 21 health areas that are part of the Healthy People 2010 focus areas; diabetes and oral health are two areas included. Applications must be received in the OMH Grants Management Office by May 18, 2001. The demonstration program, which began in 1993, aimed to build communication bridges and reduce barriers to care for members of LEP communities by means

of funding for demonstration projects working with community-based organizations to offer activities and services for LEP people (many of whom are members of racial or ethnic populations).

A. Potential Partners Identified

As stated earlier in this report, action needs to take place the three levels of influence, aiming to change

- *individuals' perceptions* of oral health as a reflection of health in general and oral complications of diabetes affecting minority populations, in particular
- *nondental care providers' perceptions* about the interplay between oral health and blood glucose levels, to ensure that patients with diabetes keep their mouths healthy as part of their diabetes care regimen
- *policymakers' perceptions* of how critical it is to ensure the inclusion of oral health services in health promotion and disease prevention programs, care delivery systems, and reimbursement schedules.

Beginning with the broad level of influence of policymakers and systems of care, the following is a list of potential partners identified in this environmental scan:

Office of Minority Health

- Bilingual /Bicultural Service Demonstration Grant program grantees on diabetes projects
- OMH Resource Center
- OMH Resource Persons Network

National Institutes of Health

- NDDK National Diabetes Education Program
- National Diabetes Information Clearinghouse
- National Oral Health Information Clearinghouse
- National Center for Minority Health and Health Disparities
- National Diabetes Education Initiative Education Council

Health Resources and Services Administration (HRSA)-Models That Work (MTW)

The MTW Campaign was a public/private partnership involving more than 40 national foundations, associations, nonprofit organizations, Federal agencies, and members of the business community working to promote access to primary and preventive health care for underserved and vulnerable populations. The vision of HRSA and the MTW Campaign was to improve health and economic outcomes in communities across the Nation enough to achieve 100 access to care and to eliminate health disparities between population groups.

MTW Campaign

- Identified model programs by means of national competitions
- Provided technical assistance for replicating and adapting model programs
- Shared information on models by various means
- Built partnerships with organizations that had a vested interest in primary health care.

The MTW Campaign made significant progress toward building a health care network for underserved and vulnerable populations. By means of its national competitions, MTW identified community-based programs that demonstrated innovation, quality, partnerships, being community-driven, and having replicable outcomes in primary and preventive health care.

Again, the cornerstone of the MTW Campaign was the fact that it was a public/private partnership. By using extensive cosponsor networks, the campaign was able to spread the word about MTW to a broad constituency of groups, individuals, and community-based organizations, ranging from State policymakers to the faith community. *The partners had a vested interest in building up their primary capacity to solve the health care challenges facing underserved communities.* Cosponsors included the National Conference of State Legislatures, National Association of Public Hospitals, American Public Health Association, Bristol-Myers Squibb Co., and the Robert Wood Johnson Foundation, Inc. The model winners had partnerships both with the public and private sectors and with other entities, such as academia, the faith community, police departments, hospitals, community health centers, and community-based organizations. MTW served as a broker to assist communities in fostering partnerships and identifying resources (as in <http://www.bphc.hrsa.dhhs.gov/mtw/mtw.htm>).

From the 1996 grantees, several models relevant to the objectives of this project were identified and may now have evolved beyond the original scope. It may still be worthwhile to capitalize on the partnerships started and lessons learned from those efforts. The relevant projects identified in this environmental scan are as follows:

- **The Rural Prevention Network**

The Rural Prevention Network (RPN) of Alcona, Losco, Ogemaw, and Oscoda Counties, Michigan, is a consortium of two community health centers, a hospital, and the four county health departments. Federal grant funding allocated for this project allowed the consortium to hire staff specifically charged with accomplishing RPN objectives. The staff hired included five health educators, four volunteer coordinators, and one information and referral specialist. The RPN was formed to reduce the burden of morbidity/mortality from chronic disease through increased primary and preventive health care in a rural, low income, medically underserved population. Through the utilization of **federal funding and team approach to health care applied by the RPN consortium, a comprehensive strategy for chronic disease prevention was developed.** RPN services encompass education, screening, referral, and treatment. Examples of RPN services include smoking cessation and fitness/weight-loss programs; nutrition, healthy heart fitness, **and diabetes education**; marketing of the "Putting Prevention into Practice" kit; Worksite and Community Health Promotion activities supported by the Michigan Department of Community Health; health screenings; referrals for primary care through an (800)

telephone number; health fairs; media educational campaigns; quarterly newsletters; and many other services. The project's scope of services was very comprehensive. Components of RPN services included evaluation and demonstration of community interest in receiving convenient and appropriate health care services, development and implementation of cost-effective services, and stimulation and education of existing providers to deliver those services. A unique feature of the project was the dual-direction referral system, in which primary-care providers refer community members to RPN staff for behavioral-risk-factor-reduction services but RPN staff are allowed to refer community members to primary-care providers for treatment. Outcomes include a reduction in behavioral risk factors, improved community access to primary-care services, and an increase in preventive services offered by primary-care providers.

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- **Camp Health Aide Program (CHAP)**

The Camp Health Aide Program (CHAP) increased migrant farmworkers' access to health care, overcoming obstacles of language, culture, poverty, and geographic isolation through the use of trained lay health promoters/Camp Health Aides. The program was designed specifically for migrant farmworkers, a population with significant health needs and severely compromised access to the health care system. The CHAP, which allowed intense, seasonal programming, establishes critical links between underserved communities and local providers who support training for the Camp Health Aides and care for the farmworkers they refer. The Aides provide sensitivity training for health care providers about the culture and lifestyle of migrant farmworkers. Farmworkers themselves, Camp Health Aides provide culturally competent health education, advocacy, outreach, first aid, referrals, and follow-up for their neighbors, families, and coworkers. Their participatory, bilingual training is adaptable to local conditions and helps the Aides share information with their peers. The **training curriculum**, also developed by the Midwest Migrant Health Information Office, covers issues most pertinent to farmworkers' health: nutrition, first aid, prenatal care, well-child care, environmental concerns (including pesticides), **diabetes**, hypertension, sexually transmitted diseases, HIV/AIDS, and mental health. The education and peer support provided by Camp Health Aides increases the confidence of farmworkers who use the health care system. Their work results in improved access to and utilization of services, earlier diagnosis and treatment, and greater cost-effectiveness. Aides themselves become empowered community advocates, able to assume active control over their health needs and those of their community. In their local communities, Camp Health Aides' actions have helped thousands of farmworkers obtain access to health care and better their health conditions. They have advocated for improved housing, recreational facilities, and changes in clinic scheduling practices to accommodate farmworkers better. The success of

the program can be measured in the extent and variety of Camp Health Aides' activities. The Aides have taught women how to do breast self-examinations and supported the women who discovered breast lumps; they have saved young children from choking with quick and accurate first aid; their HIV education has resulted in increased numbers of farmworkers being tested for HIV; and tuberculosis patients delinquent with their treatment have returned to clinics because of Camp Health Aides' education and support.

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- **Community Care Program**

The Community Care was a community-based program that served the health care needs of the medically underserved population of Carroll County, GA. Its goal was to improve the quality of life for the area's indigent population by providing affordable and accessible health care services, including primary health and dental care, preventive screenings (e.g., **diabetes**, hypertension, cholesterol), wellness education, and immunizations. The program had strong fundraising support from the community. It provided a children's dental clinic staffed solely by volunteer **dentists** and specialists as well as a mobile medical unit funded by a Federal grant. The Community Care Program was the result of a community collaboration representing the business, health care, social service, religious, and educational sectors. The program improved immunization rates of 2-year-olds from 53 percent to 93 percent over 2 years, improved the residents' access to affordable health care and preventive services, and has fostered community collaboration.

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- **Outreach Social Services for Family Practice Residencies**

Outreach Social Services for Family Practice Residencies, sponsored by Maine-Dartmouth Family Practice, provides onsite assessment, home-based social services, and case management for patients of two unaffiliated, community-based family practice residencies serving the medically uninsured low-income populations of Augusta and Lewiston, ME. The residencies subcontract with a local community-based social service agency for the services. The project has shown that residencies can work with existing agencies to provide comprehensive social services to indigent populations. In addition to improving the clients' access to medical and social services, the program has improved working relationships between medical providers and social-service providers and helped clinicians feel more efficient and effective in caring for patients. **Funding partners** include the Robert Wood Johnson Foundation, the Betterment Fund, the Jessie B. Cox Trust, the Davis Family Foundation of Maine, and State Medicaid and **diabetes control programs**.

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- **Texas-Mexico Border Diabetes Registry Project**

The Active Concerned Community Edinburg Sustaining System (ACCESS) program, of the Texas-Mexico Border Diabetes Registry Project, **was a community-oriented diabetes monitoring and care system** serving the **at-risk Hispanic** population in Edinburg, TX. ACCESS provided glucose screening, self-monitoring, education, referrals, and a payment plan. Upon identification, diabetics were given a glucose monitoring system and were seen by a primary health care provider, with referral to specialists as needed. The providers volunteer their time to the program, which had a sliding-fee scale. Individuals who were unable to pay used vouchers earned by performing various types of community service. The program was administered by means of partnerships with Edinburg Hospital, primary-health-care providers, the City of Edinburg, Eli Lilly/Boehringer Mannheim, the Edinburg Independent School District, the American Diabetes Association, and local churches. **ACCESS reduced complications of diabetes, and raised the level of diabetes awareness, and fostered a sense of personal accomplishment through self-responsibility.**

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- **Diabetes and Cardiovascular Control Program**

The Community-Based Diabetes Control Cardiovascular Risk Reduction Program, of the St. Louis Comprehensive Health Centers, Inc., in St. Louis, MO, **provided diagnosis, treatment, education, diet therapy and follow-up care** to adults at risk of diabetes and cardiovascular disease. Based on a one-stop-shopping model, the program offered **internal medicine, family-practice-physician management, optometry, ophthalmology, podiatry, health education, and nutrition services**. Funded by the Bureau of Chronic Disease of the Missouri Department of Health, the program enrolled participants who had received annual screenings for diabetic retinopathy and peripheral vascular disease or had been referred by their physicians. Collaborators included the American Diabetes Association, the American Lung Association, and the American Health Association. Outcomes included increased compliance with primary-care visits, more referrals to specialty practices, better patient education and compliance with prescribed therapy, decreased blood-sugar rates, increased self-glucose monitoring, healthier nutritional regimens for patients, and the establishment of a patient support group.

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- **Medical University of South Carolina**

The Rural Geriatric Minority Care Management Program was an academic/community collaboration, between a federally qualified community health center and a rural health clinic. It used local trained geriatric coordinators to provide a comprehensive model of care coordination and outreach. They served a constituency of **African American elderly** people working to increase their access to and use of medical care and social services and thereby reduce disparities in access to health care. The declared goals were to improve elderly African Americans' access to and utilization of medical care and social services, enhance clinicians' satisfaction with geriatric care, and improve the elderly patients' quality of life. Collaborating community organizations included Healthy Communities Initiatives, Parks and Recreation, Councils on Aging, the Area Agency on Aging, Department of Social Services, and the Department of Health. Barriers to access and

utilization were reduced by means of linking 100 percent of eligible clients with public entitlement programs and making 77 referrals to indigent drug programs, 105 transportation arrangements, and **ongoing referrals for diabetes education and management—foot care, eye exams, checkups, diet, and medications.**

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- **The Whittier Institute for Diabetes**

Project Dulce was founded by Community Health Improvement Partners, an alliance of public and private health organizations, providers and consumers, working together to improve community health in San Diego. The project addresses **the need for diabetes care and education** for the community's vulnerable populations, specifically **Latino people and African Americans.** Project Dulce **combined clinical diabetes management by means of a nurse-led team with a patient empowerment curriculum that used “promotoras” to provide patients with self-management education and help them gain access to proper care.** In the program's pilot phase, nearly 1,000 low-income and uninsured diabetics, primarily Latino, were served at six community clinic sites. The efforts led to remarkable results in health and quality of life, as documented by statistically significant improvements in biochemical markers of diabetes control, and in patients' self-care skills and sense of empowerment. The program was expanded to serve 2,000 indigent diabetics through San Diego's community health centers.

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- **University of Wisconsin–Milwaukee School of Nursing**

The Institute for Urban Health Partnerships at the University of Wisconsin–Milwaukee was established to provide health care to vulnerable populations and facilitate the development of a new, shared vision for innovative health/human service delivery in urban communities. The Institute operates four community nursing centers, located in and developed with trusted community service organizations, that identify and address community health needs

in partnership with community residents. Over a period of 13 years, coordinated linkages to approximately 30 partner groups and organizations have been developed and maintained. The resulting innovative **interdisciplinary primary health care delivery model** has been acknowledged as a national and international model for change. Outcomes which are measured on parameters of importance to the community, include increased immunization rates; reduced teen pregnancy; improved parenting skills; increased numbers of first-time parents in educational programs; **increased screening** of persons of color for heart disease, **diabetes**, and cancer; **and increased access to care** for minority populations of **African American, Hispanic**, and Southeast Asian heritage, as well as homeless families.

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- **Agency for Healthcare Research and Quality (AHRQ)—Minority health Related to Diabetes Grants Awarded**

In building on its research relevant to minority health, the Agency for Healthcare Research and Quality (AHRQ) funded grants (starting in fiscal years 1999 and 2000) that focused on outcomes and effectiveness; quality measurement and improvement; cost, use, and access; and health services research infrastructure. Grant awards relevant to the audiences and minority populations of this project are as follows:

Organization: Healthpartners Research Foundation, Minneapolis, MN

Project: Physician intervention to improve diabetes care

Project Director: Patrick O'Connor, M.P.H.

Project Period: 9/30/00 to 8/31/03

Phone: (952) 883-6000

Project: Improving Diabetes Care Collaboratively in the Community

Principal Investigator: Dr. Marshall Chin, University of Chicago, Associate Professor of Medicine

Description: Uses the Total Quality Management (TQM) chronic-disease model and enhanced provider/patient communications to improve both the quality of care and health outcomes for indigent and vulnerable diabetes patients who are treated at rural and urban community health centers (CHCs). Though the interventions are designed for the CHC setting, the findings should be generalizable to health systems with more resources and to the treatment of other chronic diseases.

mchin@medicine.bsd.uchicago.edu

Phone: (773) 702-4769

Project: Improving Primary Care of African Americans with NIDDM

Principal Investigator: Lawrence Phillips, Emory University (Atlanta, GA)

Description: Compares two program interventions for helping primary-care providers better manage urban African Americans with non-insulin-dependent diabetes mellitus (NIDDM): 1) computer flowsheets emphasizing diabetes-related parameters, with reminders to indicate a need for change in therapy and to advise alternative care strategies; 2) face-to-face feedback from directed discussion with endocrinologists, reviewing patient management, explaining therapies, and suggesting approaches to improve care.

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- **Managed-Care Organizations (e.g., Kaiser Permanente, American Healthways, Blue Cross/Blue Shield)**
- **Private Sector, (e.g., Pharmacists and Suppliers of dental-care products providing samples to accompany the messages of dental care and control of the oral-health complications of diabetes.)**

B. Interventions

A suggested sample message for a communication campaign: *To emphasize the importance of regular dental care for persons with diabetes.* Successful efforts at improving quality usually incorporate multiple interventions, such as those listed in the *Compendium of Best Practices 1999* by the Texas Medical Foundation, in a coordinated way. Comprehensive interventions may integrate Practice Recommendation Flowsheets to remind providers of the types of screening and monitoring tests and examinations needed and to provide an efficient format for documentation. (See tab 8 of binder for sample flowsheets with and without dental-care examinations included in regular checkups in diabetes care.) In other words, the most effective way is to win the support of a physician opinion leader who agrees to help develop a plan for team training and coordination and to present the plan to other physicians. The plan may call for an office nurse to perform a preliminary foot exam, review the flowsheet, and recommend to the physician which tests should be ordered.

In looking at best practices, funding agencies need to look for strategies or processes that have been demonstrated to solve a problem, improve results, and are replicable. In particular, key behavior change interventions address the following dimensions:

- **Comprehension:** What is the necessary and sufficient “package” of information for comprehension (versus awareness)?
- **Program complexity:** How to define and deliver the most cost-effective mix of information, persuasion, skills-building, and enabling interventions
- **Coverage:** How to get “the package” to essential population segments in a sufficiently tailored fashion
- **Coherence:** Across program components
- **Continuity:** Across themes/topic, and over time.

C. Threats/Barriers to Interventions

Chronic diseases like diabetes that have no cure affect all aspects of patients' daily life. Effective management of chronic diseases is also challenging and complex. Challenges to providing high-quality diabetes care include the complexity of treatment protocols; multiple clinical indicators that must be tracked over time; physicians' increasing time constraints; the fact that diabetes is only one of many diseases treated by primary-care physicians; and that in health care systems set up to deal with acute diseases, preventive care may not be reimbursed (Adelman and Harris 1998; www.diabetes.org/clinicaldiabetes/v16n41998/adelman).

Disparities in adult oral health are related to income and education:

- Adults with some college (15%) have 2 to 2.5 times less destructive periodontal disease than those with high school (28%) and even less than those with a high school (35%) level of education.
- Among persons age 65 and older, 39 percent with less than a high school education were edentulous (had lost all their natural teeth), compared with 13 percent of persons with at least some college.

According to the Surgeon General's Report on Oral Health: There is a lack of access to adult dental care

- Approximately 162 million adult Americans (60%) have no form of dental insurance.
- Medicaid dental coverage for adults is available only in about half of the States and is highly variable. In most of the remaining States, Medicaid provides only emergency dental services.
- Only about 22 percent of elderly African Americans and 26 percent of the poor elderly had had at least one dental visit in the preceding year, about one-half the national average for the elderly.
- Only 15 percent of the elderly have any private dental insurance, and Medicare does not provide reimbursement for routine dental services.

D. Health Risk Communication Process Matrix

Government agencies use a variety of techniques and tools to reach specific audiences. For example, most programs use traditional media such as printed brochures, fact sheets, posters, and kits; audiovisual materials such as 30-second or 60-second public service announcements (PSAs) on television; prerecorded or live-announcer PSAs on radio; and toll-free numbers. (See table on next page for health risk communication campaigns. Tinker, 1996.)

Source (Agency)	Message (content)	Channel (process)	Receiver (audience)	Outcome
NIH/NCI	Improving detection of melanoma	Audiovisuals, videotapes, pamphlets, slides	General public, health professionals, patients, clinicians	Reduced incidence rates, cost savings in surgery and hospitalization
CDC/NCEH	Exposure to radiation doses	Printed materials, 800 # media outreach, public mtgs	Community around Hanford Nuclear facility	Build community trust and support
NIH/NIEHS	Fluoride's overall risks and benefits	Professional journals, public communication	Communities, public advocacy groups	Public concerns, prevent cessation of fluoridation programmes
FDA	Notify and alert TMJ patients	Media outreach, press releases, journal advertisements, notification letters	Patients, health professionals	Patients motivated to action joined a registry, contacted physician
NIH/NIMH	Reducing risky sexual behaviours	Videotapes, skills training private counseling	Teenage runaways	Increase in condom use, reduce high risk behavior patterns
ATSDR	Environmental education and information for health professionals	Case studies in Environmental Medicine series	Health care professionals	Enhance communication between physician and patient, improve diagnostic and treatment skills
FDA	Identify and alert heart-valve patients	Press releases, press conference, notification letters, journal ads	Patients, consumers, health professionals, manufacturers	Identified and notified 16,000 of 23,000 patients
NIH/NIHS	Chronic drug users are at risk for developing kidney disease	Press releases, background material, newspaper articles	Consumers, physicians, manufacturers	Create awareness about risk of analgesics use
ATSDR	Explain science, build trust and credibility	Public session, community organizations, interpersonal contact, media outreach	Community, environmental activists, other Federal agencies	Increase public trust and support

In the last 5 years or so, the items in the toolbox described above have expanded to include Web sites, e-mail, portable computers, and cellular telephones. Therefore there is a need to develop data that demonstrate the modes of diffusion of technologies into minority populations, to assist planners of communication, outreach, and education programs.

E. Education

Materials developed for any intervention should be consistent with a patient's culture and literacy level. When multilingual materials are needed, a literal translation of patient information is not sufficient. Signage and materials also must use culturally appropriate images and take into account people's acculturation levels, medical beliefs, and practice systems. The inappropriately high reading level for forms and health education materials in English is often cited; this problem is compounded when materials with inappropriate reading levels are translated. Planners should consider using alternative formats to address the needs of people with sensory, developmental, and/or cognitive impairments, and persons whose languages have no written form.

The following sequence details proposed steps to follow in the development of materials for an intervention:

Materials Development

Step 1	Information from formative research and literature	Information from experts	Information from the target audience
	Message design workshop		
Step 2	Write message brief (project management team)		
Step 3	Creative workshop		
Step 4	Write draft story outlines (creative team)		
Step 5	Pretest story outlines		
Step 6	Write the draft scripts or materials		
Step 7	Pretest the draft script or materials		
Step 8	Finalize scripts or materials for production.		

F. Sample Audience Targeted for Education on the Oral Complications of Diabetes Communication Plan

U.S. Hispanics compose 12 percent of the Nation's population and already are the Nation's largest minority group. It is projected that by year 2040, one out of four people residing in the United States will be of Hispanic descent. By 2050, the U.S. Hispanic population is expected to exceed 80 million. Of U.S. residents who speak a second language, more than 80 percent speak Spanish, and 89 percent of U.S. Hispanics speak Spanish at home.

In coordination with the National Hispanic/Latino Diabetes Initiative for Action, parameters of the communication plan can be set (such as campaign objectives, targeted audience, messages, potential barriers, materials and formats, and proposed channels).

Objectives

Set specific objectives of the program, such as

- Increase the awareness of the oral complications of diabetes among Latinos/Hispanics with diabetes.
- Increase the knowledge of periodontal disease among Latinos/Hispanics with diabetes.

Stress the fact that the disease does not present symptoms during its early stages and that it can lead to periodontal disease, dental abscesses, tooth loss, and above all, poor glycemic control—due to body stress and incorrect food choices (easier to chew but full of empty calories and low in fiber).

- Increase the knowledge that those risks of diabetes can be reduced with early detection and timely management (like daily flossing, twice-daily brushing, and paying an annual visit to the dentist).
- Encourage Latinos/Hispanics with diabetes to have annual dental checkups.
- Encourage Latinos/Hispanics with diabetic oral complications to comply with the recommended treatments.
- Provide more information on oral complications of diabetes in Spanish, to accomplish the objectives mentioned above more easily.

Select Target Audiences

The primary target audience is diabetic Latinos/Hispanics and their family members by age group, who use Spanish as their first or only language and have a low family annual income, like below \$35,000 per year per family. Such audience segmentation should be done for the target audience because 1) there is a higher incidence of diabetes among lower income groups, 2) almost half of the Latino/Hispanic population falls into the lower income brackets, and 3) approximately 75 percent of the Latino/Hispanic population earns less than \$35,000 annually.

In general, 54 percent of Latinos/Hispanics fall below the poverty level or within the low-income bracket. Thirty-seven percent of them fall in the low-middle or middle income brackets. Emphasis could be on Puerto Ricans and Mexican Americans, because since they represent the subgroups with the highest prevalence of diabetes, they are at higher risk for the oral complications of the disease. (See appendix H, Census data on States with Hispanic/Latino population for 2000).

The secondary target audiences could include Latino/Hispanic health care professionals or health care professionals who work in Latino/Hispanic communities, including pharmacists, Latino/Hispanic churches and religious organizations, and Latino/Hispanic intermediaries such as community clubs, centers, and national and community-based organizations.

Messages

The educational and promotional materials should present the risk factors of oral complications of diabetes, including the facts that there are no symptoms during the initial stages and that it can result in poor glycemic control and periodontal disease. Messages should be presented in a believable, personal, and nonthreatening way and should be validated by credible Latino/Hispanic sources and by scientific information. The positive side of the messages should be that daily brushing and flossing and an annual dental checkup can prevent complications. The message should be presented in a reassuring way, to make Latinos/Hispanics feel that they really can have control over the disease and their lives. The materials should be written in neutral Spanish and aimed at Latinos/Hispanics with low literacy skills.

Anticipated BARRIERS TO MESSAGE ACCEPTANCE:

- Limited awareness and/or knowledge of the link between oral health and diabetes.
- Concern only about nonoral diabetic complications that present symptoms and/or are considered more acute (cardiovascular disease, diabetic retinopathy, etc.).
- Lack of knowledge and/or access to dental care.
- Lack of health insurance coverage for dental care.
- Time and cost of dental checkups.
- Fear of dentist/dental pain. Many Latinos/Hispanics do not go to the doctor because they fear getting bad news.
- Lack of Latino/Hispanic diabetes/dental-care or other health care professionals who could reinforce the importance of oral health in relation to diabetes. For Latinos/Hispanics, "personalismo" (personal contact) in health care services is essential. Therefore, they prefer to see Latino/Hispanic doctors, with whom they can establish a rapport and trust.
- Lack of transportation. This problem is particularly serious among the Latino/Hispanic elderly, who often cannot drive or take public transportation by themselves.

Materials And Formats

Broadcast Media

The broadcast media have a high penetration in the Latino/Hispanic community, because they take advantage of the rich oral and audiovisual tradition of the Latino/Hispanic culture. They also offer direct impact and a personal approach, which are extremely important in the Latino/Hispanic culture. Radio and television are highly effective particularly among Latinos/Hispanics with low literacy skills and those who work in the services industry and are able to listen to the radio or watch television at work.

The growing number of general Latino/Hispanic market broadcast media includes three major television networks, more than 60 television stations that produce programming locally, and several hundred local radio stations. Among those media outlets, there are an increasing number of health-oriented and medically oriented programs and vehicles that can be tapped through public relations programs. The Spanish-language media are very receptive to information that is relevant to the community.

There are more Latino/Hispanic health care reporters now than there used to be on television stations in New York, Houston, Miami, and Los Angeles who have a special interest in Latino/Hispanic health care issues. More and more local radio stations have added an "Ask the Doctor" type of call-in show to their programming. The shows are generally hosted by a local Latino/Hispanic doctor and include guests from the medical field who answer questions from the community. There are also a number of health care shows available.

According to the *1994 U.S. Hispanic Market Study*, Central Americans and Puerto Ricans are the Latino/Hispanic subgroups with the highest media usage (10.25 and 10.22 hours per day, respectively). They are closely followed by Mexican Americans (9.18 hours per day). Cuban Americans are the group with the lowest media usage (7.43 hours per day). All of the Latino/Hispanic subgroups use Spanish-language media outlets much more often than English-language ones. The media outlet most used among all Latino/Hispanic subgroups is television, followed by radio. Among all Latino/Hispanic subgroups, magazines and newspapers were the least-used media outlets.

Television was the source of news and information most frequently cited by Latino/Hispanic participants in a national survey. It found that 78.9 percent of the Puerto Ricans, 75.3 percent of the Mexican Americans, and 70.7 percent of the Cuban Americans chose television as their main source of news and information (compared with 64.5 percent of the non-Latino/Hispanic whites).

Latinos/Hispanics consider Spanish-language television and radio stations to be credible sources of information and links between different Latino/Hispanic subgroups in the United States. They also use the Spanish-language media to get information about their native countries, information that is extremely scarce in the mainstream media. Latinos/Hispanics usually have a high level of loyalty to Spanish-language media outlets, particularly the ones that are more involved in the community. The Spanish-language media, particularly radio, have demonstrated a special interest in disseminating information to improve the health status of Latinos/Hispanics.

Radio is a relatively inexpensive yet highly effective communication channel, because it has a deep penetration into the Latino/Hispanic community. Partnerships can be developed with Spanish-language or bilingual radio stations to produce and broadcast minidramas, minidocumentaries, talk shows, and/or testimonials on diabetic eye disease. Another option would be to use the stations' music festivals to promote the selected messages by means of an exhibit or a PSA.

Public Service Announcements on Television and Radio

On Spanish-language television and radio, PSAs could be used to create awareness among Latinos/Hispanics about the link between diabetes and hazards to oral health and the importance of regular toothbrushing and flossing, as well as yearly dental checkups for early detection and as a way to prevent oral-health complications of diabetes. Taped television and radio PSAs could feature spokespersons who are trusted by Latinos/Hispanics and are able to effectively deliver the messages of the National Eye Institute's Eye Health Education Program (NEHEP) effectively. Live-announcer radio PSAs could also be developed and provided to the radio stations, to reinforce the messages of the taped ones. If taped television PSAs are produced, they should be disseminated through the Spanish-language national networks Univisión and Telemundo and their respective affiliates and through local Spanish-language television stations. They should also be distributed to the Spanish-language or bilingual public affairs shows of mainstream television stations. If taped and live public service announcements are produced for radio, they should be disseminated through the Spanish-language radio networks and their affiliates and through local radio stations in cities with large Latino/Hispanic populations.

Public Service Announcements in Print

Print PSAs particularly if they are placed in Spanish-language community newspapers and magazines, could also be used to disseminate the selected messages. If television and radio PSAs are produced, the print PSAs could serve to reinforce the messages presented in the broadcast media. They should be used to a lesser extent, however, because Latinos/Hispanics do not read printed media as much as they use broadcast media outlets.

Spanish-Language or Bilingual Brochures

A Spanish-language or bilingual brochure could be produced to disseminate the selected messages in the Latino/Hispanic community. If radio, television, and/or print PSAs are produced and disseminated, a brochure could then help expand and reinforce the selected messages. If a brochure is produced, it should include information on the definition, risk factors, causes, and preventive and treatment measures for the diabetic complications of oral health. The information should be adapted to the Latino/Hispanic population, and the graphic art should be representative of Latino/Hispanic individuals and their culture. To be understood by all Spanish speakers regardless of their country of origin, the brochure should be written in neutral Spanish and avoid regionalisms. Any Spanish-language or bilingual brochures should be aimed at Latinos/Hispanics with low literacy skills, so that they can reach a broad group (readers at all levels of literacy) within the Latino/Hispanic population.

A brochure would increase Latinos/Hispanics' knowledge of diabetes and oral health by providing more detailed information that they can read at their own pace and take home to use for future reference. A brochure would also give them an opportunity to share information with family members or friends who might be at risk for the oral complications of diabetes. The brochure could also be disseminated to the Latino/Hispanic community by means of Latino/Hispanic physicians and other health care professionals; health educators and volunteers in hospitals or clinics that serve Latinos/Hispanics; pharmacists in pharmacies located in Latino/Hispanic communities; churches, religious leaders, and business leaders in Latino/Hispanic communities; and partners and intermediary organizations, associations, and groups that serve Latinos/Hispanics. A brochure could also be distributed by means of special exhibits. A review of Spanish-language and bilingual printed materials on diabetes and diabetic oral health could be conducted to assess the availability of materials designed for Latinos/Hispanics. Variables such as appeal, cultural sensitivity, literacy level, use of technical terms, and use of regionalism can be examined during the assessment. If an appropriate brochure or publication is found, an arrangement could be made with the organization that produced the brochure to print or revise the publication.

Special Exhibits

A tabletop exhibit to promote the selected messages directly in Latino/Hispanic communities could be developed. If this option is chosen, agreements can be established with Latino/Hispanic associations, organizations, or groups to provide them with materials to enable them to set up the exhibit and distribute the materials at meetings, health fairs, and other special events for Latinos/Hispanics.

Another option would be to rent an exhibit booth and attend the annual meetings of the major Latino/Hispanic organizations, associations, and groups to distribute the materials to Latino/Hispanic professionals or other professionals who work directly with Latino/Hispanic communities.

Arrangements could be made with the planners of the main Latino/Hispanic festivals, parades, and other celebrations (such as the Puerto Rican Parade in New York City, the Festival de la Calle Ocho in Miami, and various celebrations of Cinco de Mayo, in the Southwest and elsewhere) to provide organizers with exhibit materials to be distributed at those events. This approach represents an excellent opportunity to reach Latino/Hispanic health care professionals and the Latino/Hispanic target audience on a personal, direct level.

Spokespersons

Spokesperson(s) whom Latinos/Hispanics trust and who are suitable to deliver the selected messages could be used to announce them and to promote related activities. If television, radio, and print PSAs are produced, the spokesperson(s) could be featured in all of them, so as to get the attention of Latinos/Hispanics. The spokesperson(s) could also be encouraged to participate in promotion activities such as information commercials, exhibits, interviews, and/or special media or community events.

Since Latinos/Hispanics tend to have high levels of respect for Latino/Hispanic physicians and see them as knowledgeable, credible sources of health care information, it would be appropriate to choose a well-known Spanish-speaking Latino/Hispanic doctor as the spokesperson for the program.

Latinos/Hispanics also have respect for Latino/Hispanic celebrities who have become famous in the United States and in Latin America because they represent the Latino/Hispanic culture. Such celebrities are good at capturing the attention of various Latino/Hispanic subgroups, regardless of the cause they are advocating. The celebrities are perceived as credible sources of information because they have been able to acquire the admiration and trust of Latinos/Hispanics, who perceive them as friends. Music is a strong cultural link among Latino/Hispanic subgroups and one of the main expressions of the Latino/Hispanic popular culture. A famous Latino/Hispanic singer with diabetes acting as a spokesperson would add a personal approach to the program's messages.

Proposed Channels

If taped television PSAs, and taped and live radio PSAs, are produced, the following media channels could be used for their distribution and dissemination:

- The Spanish-language national network Univisión and its 19 full-power station affiliates, 18 low-power affiliates, and cable affiliates (reaching 443,553 subscribers)
- The Spanish-language national network Telemundo and its affiliates
- Spanish-language and bilingual radio networks
- Spanish-language and bilingual television and radio stations in cities with high Latino/Hispanic populations
- Mainstream television and radio stations that broadcast Spanish-language public-affairs shows.

If a Spanish-language or bilingual brochure is developed, it should be distributed through the following channels:

- Latino/Hispanic health care professionals or others who work in Latino/Hispanic communities, including pharmacists
- Public and nonprofit health care facilities that serve Latinos/Hispanics
- Clinic and health center educators and volunteers who serve the Latino/Hispanic communities
- Churches and religious organizations
- Latino/Hispanic community clubs and centers
- Grassroots Latino/Hispanic organizations (national and local)
- Latino/Hispanic businesses (such as pharmacies, beauty parlors, barber shops, and grocery stores) and botánicas (herbal-medicine shops) where Latinos/Hispanics buy their folk or home remedies
- In exhibits presented in Latino/Hispanic festivals and special events (See Appendix I, a calendar of diabetes-related observances).

Justification For Primary Research

To design effective health education and communication materials, program strategists must have a thorough understanding of the target audience's knowledge, attitudes, and practices concerning health issues. The program developers must be sensitive to the target audience's cultural and social beliefs and incorporate their principles in the context of health messages. Therefore, an essential element of the Latino/Hispanic communication plan is to gather information on the health beliefs and practices of the Latino/Hispanic communities. A quantitative and qualitative research plan for developing messages aimed at the four primary Latino/Hispanic subgroups—Puerto Ricans, Mexican Americans, Cuban Americans, and Central Americans—should look for more information on 1) practices specific to oral-health complications, 2) sources of health information (specifically on dental health care), 3) access to mainstream medicine, and 4) appropriate change agents and communication channels.

The primary research plan for a Latino/Hispanic communication program might best be two pronged. Focus groups called be conducted with members of the primary Latino/Hispanic subgroups with diabetes, and one-on-one interviews could be conducted with representatives from the Spanish-language media.

Focus Groups

A recommended total of eight focus groups could be conducted—two focus groups for each population: Puerto Ricans, Mexican Americans, Cuban Americans, and Central Americans. The focus groups could be conducted in the four cities with the highest population of those subgroups. Focus groups with Puerto Ricans could be held in New York City; those with Mexican Americans could be held in Los Angeles; those with Cuban Americans could be in Miami; and those with Central Americans could be in Washington, D.C. The final selection of cities could also take into account how the income levels of the subgroups compare to the national averages according to the latest Census data.

One-on-One Interviews

One series of focus group questions will find out which media channels are used most by the target audiences. When those channels have been identified, one-on-one interviews will be conducted with representatives of the network and local cable television stations, radio stations, and newspapers that reach the Latino/Hispanic subgroups. Interview questions will capture information on the media outlets' use of PSAs, their degree of interest in diabetic retinopathy, and their audience demographics. Those data will be used to guide the development, distribution, and evaluation of the materials designed for the Latino/Hispanic communication program.

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Appendix A

Oral Complications Logic Model

Framework for Analysis

We began our work for this task by framing the different levels of analysis. First we constructed a logic model, which is a graphic depiction of the relationship of inputs and activities of a program to its intended effects, and is based on the purpose of the project, as specified in the request for task order proposal (in this case, a charge to compile data on interventions and identify gaps that exist in the literature on the subject). Because the inputs and activities varied depending upon the complication, three separate logic models for foot, oral, and eye were created. The two audiences defined in the model were patients with diabetes and health care providers (either primary care physicians or diabetes specialists). The following are inputs that facilitate diabetes care and management: screening for diabetes complications; training health care providers to use appropriate methods of screening and detection; creating systems for the provision of care; and providing enablers that create a system in which patients can take action to manage their disease. Without these inputs, the system for diabetes care and prevention would be fragmented and potentially ineffective. Some examples of activities enabled by these inputs are self-management of diabetes, behaviors that help to prevent diabetes complications, and collaboration between primary care providers and health care specialists. Identifying and eliminating barriers to such diabetes-related activities represents an important step towards changing knowledge, attitudes, and beliefs about self-management of diabetes and its complications; increasing social and environmental support; enhancing the knowledge of physicians; and improving healthcare practices. Ultimately, mitigating or eliminating those barriers will help to reduce the incidence and prevalence of poor health outcomes caused by diabetes and its associated complications, as measured by a decrease in diabetes complications and an increase in appropriate diabetes care.

The logic model on oral complications follows.

ORAL Framework¹ (Overall Focus: Primary Care for 4 Audiences especially African Americans, Latinos, Native Americans and Asian Americans)

Audiences	Inputs	Activity	Barriers	Effects	Ultimate Outcomes
People with diabetes who are at risk for developing complications	Environmental Inputs/Factors (e.g. Media, Political & Popular Culture, etc.) Health Care Settings (e.g. Urban, Rural, Health Center, Mobile Clinic)	Self management of diabetes (e.g. examination of teeth and gums; visits to dentist twice a year) Action to facilitate increased physical activity, proper nutrition, etc. Active educational efforts to change or increase KAB about DCom	Lack of audience knowledge and understanding about risk factors for diabetes and ORAL complications	Increased social and environmental support for diabetes ORAL complications Greater understanding of Diabetes and ORAL complications	Delayed onset of ORAL complications (Reduced EYE and FOOT complications from Diabetes)
	Prevention & Early Detection Planning Partnership development between internal medicine, and the Dentistry/ORAL health profession	Increased awareness of warning signs for ORAL complications Community Involvement (Advertising/Communication of FOE Complications)	Audience Risk Behaviors (e.g. poor diet, inactivity, smoking, etc.) Fear and pain experienced when visiting the dentist for ORAL care	Changed KAB and self-efficacy regarding self-management of diabetes and its complications Access to Quality Care	Better ORAL Health Outcomes: * Increased dental visits * Decrease periodontal disease * Decrease total tooth loss * Increase case finding and control
Health Care Providers - Primary Care Physicians - Diabetes Specialists	Cultural beliefs and attitudes about diabetes and complications	Programs/Interventions to help facilitate primary care prevention and management of ORAL complications	Cost to patient for health insurance and DENTAL care.	Care giver consensus on complications and agreement to target at-risk populations	Better Quality of Life for patients and caregivers
	Enablers (e.g. Actions taken to help people with Diabetes manage their disease) Support Systems for Patients	Changed Provider (e.g. primary care and ORAL health practitioners) Practice Patterns Collaboration between primary care and ORAL health practitioners	Lack of provider time to focus on all aspects of patient health care during a health care visit	Change in physician referral pattern to ORAL specialists and provision of information to patients about ORAL complications	
	Screening for ORAL complications	Clinical science promoting link between diabetes and ORAL complications	Lack of provider knowledge about ORAL complications and lack of cultural competency for provision of health care services	Consistency of health care standards, guidelines and indicators addressing diabetes ORAL complications	
	System Approach (versus Caravan Style Approach) to Diabetes prevention and prevention of complications				

¹ The process, that is the inputs, activities, and barriers to outcomes, a person may encounter in dealing with diabetes and its complications.

Appendix B

Literature Review Summary Charts (By Population, By Audience)

Summary Table for Findings of Population by Diabetes Complication

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Population				
General Population	<u>Risk Factors for developing diabetes:</u> <ul style="list-style-type: none"> Genetic factors (family history, thrifty gene). Obesity: adiposity and regional fat distribution. Diet. Lack of physical activity. Social and environmental factors. 	<u>Risk Factors for developing foot complications:</u> <ul style="list-style-type: none"> Poor glycemic control Smoking Hypertension Duration of diabetes <u>Recommendations for care:</u> <ul style="list-style-type: none"> Primary care provider conducts foot exams at every visit (minimum 4 times per year). Patients play an active role in care through self-management and proper foot hygiene. 	<u>Risk Factors for developing oral complications:</u> <ul style="list-style-type: none"> Poor glycemic control Poor oral hygiene Smoking Age Duration of diabetes <u>Recommendations for care:</u> <ul style="list-style-type: none"> Bi-annual check-ups by an oral health provider. Self-management – brushing and flossing of teeth, glycemic control. There is a synergistic relationship between diabetes and oral health (poor oral health leads to eating foods inappropriate for glycemic control and interns leads to oral complications). 	<u>Risk Factors for developing eye complications:</u> <ul style="list-style-type: none"> Duration of diabetes Poor glycemic control <u>Recommendations for care:</u> <ul style="list-style-type: none"> Annual dilated eye exams
Minority General Population	<ul style="list-style-type: none"> Minorities have a higher risk for developing complications compared to non-minority populations. Low economic status renders minorities more vulnerable to discontinuities and fragmentation of health care. Patient education was effective in improving diabetes health outcomes and improving self-efficacy. <i>Enablers:</i> Programs that use peer education and local media are 	<ul style="list-style-type: none"> A very small number of patients are receiving care in inner-city hospitals report receiving foot exams. Disparities of incidence of foot complications exist between whites and non-whites. 	<ul style="list-style-type: none"> There is a lack of information on minority populations with diabetes and periodontal disease. <p>Those more susceptible to developing periodontal disease:</p> <ul style="list-style-type: none"> those with a long duration of diabetes. those with other diabetes related complications. teenagers and pregnant women. those who have poor oral hygiene behavior. 	<ul style="list-style-type: none"> Minority populations are not receiving proper preventive eye exams. Minority populations are more likely to receive tertiary care rather than primary care. <p><i>Enablers to receiving eye exams and appropriate eye referrals:</i></p> <ul style="list-style-type: none"> Doctor recommendation for eye care. Spiritual motivators (faith in God and hope).

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Population				
	effective in changing knowledge, attitudes, and beliefs of minority populations.		<ul style="list-style-type: none"> those who have poor glycemic control. 	<ul style="list-style-type: none"> Education on need for annual exam and on the importance of adhering to treatment. <p><i>Barriers to receiving eye exams and appropriate eye referrals:</i></p> <ul style="list-style-type: none"> lack of insurance cost of eye exams lack of child care not having had an eye exam in the past fear of consequence of eye exam (surgery) over comfort of a dilated eye exam.
Native American	<ul style="list-style-type: none"> Diabetes is the 4th leading cause of death in this population. Among Pima Indians, 50% of the population has type II diabetes. Due to changing diets and fewer fluctuations in food supply and decreased physical activity, diabetes is highly prevalent among Native Americans. Diabetes education on self-efficacy and diabetes self-management plays a role in changing knowledge, attitudes, beliefs and behavior. 	<ul style="list-style-type: none"> Among Native Americans, foot exams by themselves does not reduce the risk of amputations. Education and proper preventive care is also needed. Among Native Americans, rates of lower extremity amputation are three to four times greater than the general population. 	<ul style="list-style-type: none"> Pima Indians (Native American) population has high prevalence of diabetes which has been linked with periodontal disease. 	<ul style="list-style-type: none"> Native Americans are disproportionately affected by diabetic retinopathy compared to whites. 18% of Pima Indians have some form of retinopathy.

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Population				
African American	<ul style="list-style-type: none"> Diabetes is the 7th leading cause of death in this population. African Americans reported the fewest hours of diabetes education compared to Mexican Americans and non-Hispanic whites. 	<ul style="list-style-type: none"> Among African-Americans, foot care education can decrease the risk of amputations. <i>Barriers</i> to doing foot care self-management that have been reported among African-Americans include: lack of motivation, forgetfulness vision problems, joint and knee problems, and family responsibilities. <p><i>Enabler:</i></p> <ul style="list-style-type: none"> The simplicity of instruction and the provision of a hand-held mirror for foot inspection were well received in an African American population. 	<ul style="list-style-type: none"> Little information is known in the reviewed literature on the prevalence and incidence of oral complications due to diabetes. 	<ul style="list-style-type: none"> The prevalence of diabetic retinopathy is higher in African Americans compared to whites. The occurrence of retinopathy is associated with hypertension, and the African America population has higher rates of hypertension than whites.
Hispanic/Latino	<ul style="list-style-type: none"> Diabetes is the 7th leading cause of death in this population. Disparities exist in treatment and management among the Hispanic/Latino populations compared to non-Hispanic whites. Delivering diabetes care to Latinos needs to be through the primary care providers and conducted in a team approach. <p><i>Enabler:</i></p> <ul style="list-style-type: none"> Peer educators from the local Hispanic/Latino community used to deliver diabetes education is an effective way to motivate behavior change. 	<ul style="list-style-type: none"> Mexican Americans reported greater prevalence of neuropathy than whites or African Americans. 	<ul style="list-style-type: none"> Hispanic/Latinos (Mexican Americans) are less likely to visit a dentist than whites. 	<ul style="list-style-type: none"> 32-40% of Mexican Americans with diabetes have retinopathy.

Summary Table for Findings of Audiences by Diabetes Complication

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Audience				
System/Organization	<u>Approaches:</u> <ul style="list-style-type: none"> • <i>Multidisciplinary team</i> – a system of services in which all members of the health care team are devoted to maintaining the overall health of the patient with diabetes. • <i>Population-based approach:</i> <ul style="list-style-type: none"> - diabetes registry system - diabetes care teams - evidence-based guidelines. • <i>Single component change:</i> <ul style="list-style-type: none"> - feed back system - algorithm for care. 	<u>Approaches:</u> <ul style="list-style-type: none"> • A coordinated system of care that includes a variety of health care professionals can reduce the risk of lower-extremity amputations for diabetics. <u>Barrier:</u> <ul style="list-style-type: none"> • Lack of time for patient to remove footwear for exam and to complete diabetes flow sheet. • Clinics focused on addressing patient's main complaint during a visit, missing additional opportunities for preventive care. <u>Enablers:</u> <ul style="list-style-type: none"> • Critical pathways approach to care can lead to earlier diagnosis and treatment (and hence, better outcomes) of foot complications. • The use of a risk categorization system predicts better outcomes for high-risk patients because once identified, such patients can be closely monitored and given necessary treatment. 		<u>Approaches:</u> <ul style="list-style-type: none"> • Use of <i>multidisciplinary</i> care teams improves the number of appropriate screenings conducted for diabetes patients. • Use of an <i>algorithm</i> for care increases the rate of appropriate referrals for eye care and screenings.

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Audience				
Health Care Provider	<ul style="list-style-type: none"> Health care provider is an essential point-of-contact for diabetes care. Low adherence to recommendations from diabetes screening guidelines for oral and foot exams. Higher rates of recommendations for care for type I than for type II diabetes patients. <p><i>Barriers:</i></p> <ul style="list-style-type: none"> Patient refusal to adjust medication according to recommendations. Patient refusal or inability to self-monitor blood glucose. Patient refusal or inability to keep appointments, preventing opportunity to give recommendation. High staff turnover rates in clinics. Short appointment times limit the issues that can be addressed. 	<ul style="list-style-type: none"> Physicians must be able to identify risk factors and classify patient's risk for amputation. Providers must be able to advise patients on appropriate techniques for self-maintenance and glycemic control. Physicians have difficulty identifying those patients at risk for neuropathy. More education from providers to patients can lessen a patient's risk for neuropathy. <i>Enabler:</i> Clinical practices were positively influenced after physicians received foot-care practice guidelines and education on risk factors, appropriate referrals, and foot exams. 		<ul style="list-style-type: none"> For valid screening results, an individual trained in conducting and interpreting eye exams is needed. The primary care physician's role is to serve as a gatekeeper for care and to make referrals as appropriate to eye care specialists. Primary care physicians can improve their knowledge of appropriate exam techniques and referral patterns through short education classes. <p><i>Patterns of care among health care providers:</i></p> <ul style="list-style-type: none"> Referrals to eye care providers tend to be made when a patient presents with acute symptoms. Type II diabetics are less likely to be screened than type I because type II is perceived as less severe. Density of Ophthalmologists in a geographic area has an impact on referral patterns. Optometrists can provide dilated eye exams. <p><i>Barriers to providing dilated eye exams:</i></p> <ul style="list-style-type: none"> Lack of recent knowledge on medical techniques related to the eye and treatment for eye complications. Fear of making a mistake when conducting dilated eye exams. Lack of confidence in correctly diagnosing a patient.

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Audience				
Patient with Diabetes	<ul style="list-style-type: none"> Lowest compliance to diabetes care recommendations among patients was for foot exams. <i>Enabler:</i> Patients are more likely to receive recommended care if the provider has a reminder system for scheduling follow-up appointments. 	<p><i>Intrinsic factors affecting patients:</i></p> <ul style="list-style-type: none"> Duration of diabetes, age, weight, neuropathy, decreased visual acuity, limited joint mobility and structural deformity. Patients are often unsure of how they can prevent neuropathy themselves. <p><i>Extrinsic factors affecting patients:</i></p> <ul style="list-style-type: none"> Smoking, trauma to foot, social support systems, patient education. <p><i>Fact:</i></p> <ul style="list-style-type: none"> Patients who have not had any diabetes education are more than three times more likely to have a lower-extremity amputation than those patients that have taken had diabetes education. <p><i>Barriers to seeking regular foot exams:</i></p> <ul style="list-style-type: none"> Lack of obvious foot or leg problems. Poor vision, obesity, and impaired mobility. Transportation has not been shown to be a barrier. <p><i>Enablers:</i></p> <ul style="list-style-type: none"> Strong social support systems for patients. High quality diabetes education. Having diabetes education classes that are convenient (in terms of time and location) for patients to attend. A one-hour class on foot care has been shown to reduce a patient's risk for amputations and ulcers. 	<p><i>Barriers to good oral health behaviors:</i></p> <ul style="list-style-type: none"> Income level Cost of oral care Lack of perceived need Lack of insurance coverage <p><i>Enablers to good oral health behaviors:</i></p> <ul style="list-style-type: none"> Family function Primary care physician as entry point into comprehensive dental health care system. 	<p><i>Factors to receiving eye exams:</i></p> <ul style="list-style-type: none"> Retinopathy is asymptomatic In terms of eye exams, socioeconomic factors are more pronounced among the younger onset diabetics. <p><i>Barrier to receiving eye exams:</i></p> <ul style="list-style-type: none"> Lack of knowledge of the need and purpose of dilated exams. Low educational attainment, low income and low insurance status. <p><i>Enablers to receiving eye exams:</i></p> <ul style="list-style-type: none"> Having had a diabetes education class. Having a high density of ophthalmologists in patient's geographic area.

	Findings by Complication Type			
	General	Foot	Oral	Eye
Findings by Audience				
International	<ul style="list-style-type: none"> Lowest compliance for care among diabetes patients was for foot exams, as found in a US study. A gap exists between provision of care reported by the provider and receipt of care reported by the patient. Education programs targeted at diabetics improved patient self-management behaviors. <i>Barriers to care:</i> lack of diabetes case management and limited appointment time to address multiple health issues. <i>Enabler to care:</i> use of community pharmacists to provide diabetes education and monitoring. 	<ul style="list-style-type: none"> Confirming studies conducted in the US, a multidisciplinary team approach to diabetes foot care improves complication outcomes. 	<p>Factors associated with oral disease and diabetes:</p> <ul style="list-style-type: none"> Duration of diabetes (more of a factor than age of patient). Lack of knowledge of oral health problems associated with diabetes (may be due to lack of provider knowledge). The self-efficacy model, theory of attribution and locus of control were used to describe how an individual's knowledge, attitude, beliefs or behavior influenced his or her oral health outcome. 	<ul style="list-style-type: none"> Discrepancies exists between the screening rates reported by physician and the recorded number of screenings actually performed. <p><i>Enabler to increase screening:</i></p> <ul style="list-style-type: none"> Use of mail-outs and local media was effective in recruiting diabetic patients to a mobile clinic.

Appendix C

Interview Questions

ORAL COMPLICATIONS OF DIABETES

QUESTIONS/DISCUSSION TOPICS

(Unstructured Interview Guide)

Name: _____

Organization: _____

Contact Details: _____

1. To your knowledge and from your experience, what are the complications of diabetes?
2. Did you also know that diabetes has oral health complications, such as periodontal disease, tooth loss, dry mouth, dental abscesses, gingivitis, and oral infections?
3. What do you see as baseline knowledge, attitudes, beliefs, and behaviors with respect to oral complications of diabetes?
 - of people with diabetes and their families/caregivers?
 - of dental and nondental health care providers?
4. What programs/interventions to reduce the oral health complications of diabetes are you aware of?

Probe: *At national level? At State level? At local level?*

Please tell us the name of the program, the type (screening, awareness, education, etc.), geographic location, target audience (type of diabetes, ethnic group, patients, health care providers), and contact information if available.

5. Which programs/interventions seem to be successful? Why?
6. What factors do you think are involved in building family and community support to encourage behaviors to prevent and control oral complications of diabetes?
7. How and to what extent can health care providers be engaged to take a more proactive role in helping their patients to prevent the oral complications of diabetes?

8. In your estimation, what factors are helpful when considering potential partners for interventions to prevent/reduce/control the oral complications of diabetes?
9. What factors do you think are important for interventions that emphasize regular dental care for persons with diabetes? Specifically, list factors for interventions aimed at these target levels:
 - health care systems (clinics, State initiatives, managed care organizations, etc.)
 - non-dental health care providers
 - patients with diagnosed diabetes.
10. What do you see as challenges for interventions aimed at those target levels?
11. Can you recommend dental care research specifically targeting ethnic and racial populations at higher risk for diabetes (African American, Latino/Hispanic, Native American, Asian)?
12. Do you know of any psychosocial and/or other trend data that might enhance or threaten future research or intervention activities?

Probe: *the media, political and social environment?*

THANK YOU FOR YOUR TIME!

Appendix D

List of Organizations Contacted

Environmental Scan for Oral Complications of Diabetes Organizations Contacted

- \$ CDC, Division of Diabetes Translation, Epidemiology Branch
- \$ American Diabetes Association
- \$ The American Diabetes Association -- African American Program
- \$ Diabetes Association of Atlanta
- \$ American Dental Association
- \$ American Medical Association
- \$ American Association of Dental Schools
- \$ American College of Dentists
- \$ Arizona Diabetes Control Program (DCP)
- \$ California DCP
- \$ Florida DCP
- \$ Illinois DCP
- \$ Louisiana DCP
- \$ New Mexico DCP
- \$ Texas DCP
- \$ American College of Physicians
- \$ American Association of Diabetes Educators
- \$ American Academy of Family Physicians and Endocrinologists
- \$ NJ Veterans Administration Health Care System
- \$ Black Men Health Net
- \$ The Minority Health Professions Foundation
- \$ National Oral Health Information Clearinghouse, NIH
- \$ National Dental Association (NDA)
- \$ National Alliance for Hispanic Health
- \$ The National Hispanic Medical Association
- \$ Hispanic Dental Association
- \$ National Diabetes Education Initiative Education Council

Appendix E

Email Listserves and Chatroom Electronic Addresses

E-Mail Mailing Lists

Daily alerts from Dr. Joe, the Diabetes Doctor at <http://www.diabeteswell.com>
To subscribe to E-News mailto: Dr.Joe@diabeteswell.com

Daily newsletters, “News From HealthCentral.com” at www.HealthCentral.com

Daily newsletter WebMDHealth ~ DIABETES NEWSLETTER at
http://my.webmd.com/condition_center/dia.

Weekly Living Better newsletter at <http://my.webmd.com>

Weekly Diabetes newsletter at http://my.webmd.com/condition_center/dia

Diabetes E-News Now! - Health Care Professional Edition, weekly newsletter of the American Diabetes at <http://www.diabetes.org>

Monthly Diabetes Digest Newsletter at <http://www.diabetesdigest.com/>

Medformation.com weekly eBriefs & semi-monthly eMagazines in Pregnancy, Diabetes, Heart Health and General Health at <https://www.medformation.com/>

Weekly enews CDC en Español (in Spanish) at <http://www.cdc.gov/spanish>

Diabetes Update is mailing list to make it easier for you to keep up-to-date with new articles, columns, and Web pages about diabetes as well as other items of special interest. To join all you have to do is write to mendosa@mendosa.com with the message “subscribe diabetes update.”

Diabetic Mailing List Information - Lehigh University at
<http://listserv.lehigh.edu/lists/diabetic/html/subinfo.html>

The Diabetes Epidemiology mailing list aims to facilitate communication and promote collaboration between individuals in the field of diabetes epidemiology. To join the Diabetes Epidemiology list send this message to Majordomo@list.pitt.edu: subscribe diabepi

Diabeticos is a mailing list for Spanish speakers diabetics. To subscribe, write an e-mail to diabeticos-subscribe@listbot.com.

GlucLow is an email list for individuals with diabetes who are following a low-carbohydrate eating plan such as those proposed by Dr. Bernstein, Dr. Atkins, and Dr. Eades. To subscribe go to <http://www.topica.com/lists/glucolow> or send an email to glucolow-subscribe@topica.com .

Chat Rooms

The word “chat” unfortunately has several meanings. On discussion boards it means informal or off-topic talk. But it has long had the specific meaning of programs where Internet users can type back and forth to each other in real time. The earliest such programs were called Internet Relay Chat (IRC), and they are still available but they are harder to use and require that the user to download a client program. In the past couple of years, however, easy-to-use chat programs have become available. Some even allow a moderator and guest speaker to speak to you through Windows Media Player or Real Audio. Some of the following sites are for people with diabetes to chat with other people with diabetes. Other sites here are for patients to chat with experts.

The MSN Web Communities all have message boards. At last count, if a person goes to <http://communities.msn.com/home> and searches for diabetes, it will return 103 communities that include diabetes, mainly based in the US and fewer than 10 based abroad (Peru, Brazil, Germany) and in languages other than English. The topics selected to group a community include specific Type 1 or Type 2 diabetes, newly diagnosed, parents of Type 1 diabetes, and equipment, supplies, diet and nutrition, social support networks, mental health issues (i.e., stress, coping, depression). Most of these communities have fewer than 100 members, but four are quite active:

The Diabetes Support Room at <http://communities.msn.com/DiabeticsSupportRoom> has over 200 members and three scheduled chats per week.

Diabetes. Isn't It a Pain at <http://communities.msn.com/DiabetesIsntitapain> has over 200 members.

The Diabetes, Hypoglycemia and Transplant Corner at <http://communities.msn.com/DiabetesHypoglycemiaandTransplantCorner> has over 300 members.

The Yahoo Groups Communities have also message boards. At last count, if a person goes to the Yahoo! groups site at <http://groups.yahoo.com/> and searches for diabetes, over 300 hits will show up. There is more variety in topics than within the MSN communities and also inclusive of more international sites (Australia, Brazil, Canada, Germany, Egypt, Sweden) although these are still the minority with fewer than 15 (out of 310). Topics include the same as the MSN communities plus state-based groups, Jewish Law, nutrition, recipes, diet, women and eating disorders, nutritional supplements and treatments using multi-level marketing (MLM) schemes, and diabetic pets.

The Diabetes ChatRoom is open 24 hours a day and also has 3 scheduled chats. The URL is <http://www.orphanage.com/ChatServer/login.cgi>

Diabetes Community features the first voice chat for people with diabetes. You can use either voice or text chat (or both) to chat with a group in a public room or with one or more individuals in a private room. The URL is <http://www.diabeticvoicechat.com>

Diabetes Station is the interactive part of Diabetes Portal, a large site encompassing Insulin Free World Foundation, Fast Track To A Cure, Diabetes Station and soon to come, Diabetes Living. This site currently has the most active chat schedule. The URL is <http://www.diabetesstation.org/>

WebMD Diabetes has regular typed and audio chats with experts. The URL is http://my.webmd.com/condition_center/dia

DELPHI. A Diabetes Forum (Types 1 and 2) on Delphi opened in December 1996. From the Internet you can now go to directly to the Diabetes Forum. The URL is <http://www.delphi.com/diabetes/start> From the Diabetes Forum click on “Webpage” for a library of useful articles including one on “Financial Help for Diabetics.”

Message Boards

“Diabetes: Open Discussion” at http://my.webmd.com/roundtable_topic/1011

Diabetes Recipe Board with Noelle Jones, RD at http://my.webmd.com/roundtable_topic/9

Live Events like this one: “Are Computers Affecting Your Medical Diagnosis and Health? Learn how computers are changing the medical care -- for better or worse -- that you receive.”

<http://my.webmd.com/splash/article/1705.53503>

America Online. AOL has two types of online support groups available to its members:

One is the DM resource in a support group area. To find it, from the main menu, select GO to Lifestyles and Interests. Then select Better Health and Fitness. Next select the Message Center, then Self-Help and Support Groups, and finally the DM bulletin board. AOL’s other resource is weekly on-line “meetings”. Topics/groups represented include:

- Endocrine Disease and Diabetes Discussion Groups
- PharmInfo - Discussion Groups
- Amputation Discussion List
- Amputee Issues Discussion List
- Your Everything Else List for the Blind
- Parents of Kids Affected by Illness Discussion List
- Building Acceptance of Ourselves-Overweight
- Low Fat Eating
- Essential Oils Online - Alternative Health Discussion List
- Exercise, Diet, and Wellness Discussion List

- Informal Chat Herbal Discussion Group
- Kids Mental Health Discussion List
- Menopause Discussion List
- Nephrology and Transplantation Professional Discussion List
- Weight Loss Discussion List
- Pediatrics for Parents - A Source of Children's Health Information
- Sick Children's Discussion List
- Blindness and Family Life Discussion List
- Diabetic Pets Discussion List
- Immune System Breakdowns Discussion List
- Low Carbohydrate and Ketogenic Diet Technical Discussion List
- Mid Maine Diabetes Discussion List
- Discussion for College Students with Diabetes
- Mailing Lists On-line Diabetes Resources Discussion Group by Rick Mendosa
- Subscription information for Groups in Support of the Low Carbohydrate Lifestyle
- Fat-Free Users Group

Appendix F

Websites and Organizations Access Database Report

Diabetes Complications Internet Resources

Organization Name: African American Family Services

Website Address: www.aafs.net

Agency Type: Community based

Postal Address: 2616 Nicollet Avenue South
Minneapolis, MN 55408

Phone Number: (612) 871-7878

Description: The mission of African American Family Services is to help the African American individual, family and community reach a greater sense of well-being through the delivery of community-based, culturally specific chemical health, mental health, and family preservation services.

Organization Name: American Academy of Ophthalmology

Website Address: www.eyenet.org

Agency Type: Professional organization

Postal Address: P. O. Box 7242
San Francisco, CA 94120-7424

Phone Number: (415) 561-8500

Description: Central site that contains:
An online library of ophthalmic information--a clearinghouse of the Academy's clinical, practice-related, and governmental and regulatory information, all in one easy-to-find location.
An expanded and updated online catalog of Academy products.
An expanded online advocacy center.
A virtual newsroom, featuring the latest information from the Academy and the world of ophthalmology . Sponsor: National Eye Care Month in January

www.eyenet.org/member/clinical/online_education/ -On-Line Education Center

Organization Name: American Association of Diabetes Educators (AADE)

Website Address: www.aadenet.org

Agency Type: Professional organization

Postal Address: 100 West Monroe Street, Suite 400
Chicago, IL 60603

Phone Number: (800) 832-6874

Description: A multidisciplinary organization, with state and regional chapters, for health professionals involved in diabetes education. AADE sponsors continuing education programs on both beginning and advanced levels and a certification program for diabetes educators, and provides grants, scholarships, and awards for educational research and teaching activities. The AADE also publishes a monthly journal, curriculum guides, consensus statements, self-study programs, and other resources for diabetes educators.

The AADE website is dedicated to the needs of diabetes educators. The site describes what is new in the organization, and includes the bylaws, position statement and frequently asked questions. There are numerous diabetes links that can be found when searching the site. The Diabetes Educator, a bimonthly journal for multidisciplinary members of the diabetes health care team. The journal publishes the latest diabetes education research along with valuable teaching tools and techniques. AADE also produces the most comprehensive diabetes education resource, A Core Curriculum for Diabetes Education, now in its third edition. AADE members receive AADE News, providing association-related news and practice information, nine times per year. Call AADE for a complete listing of all educational products, including publications, videotapes, and patient materials, available through the association. Articles and abstracts from the "The Diabetes Educator" can be researched. Products and publications, including t-shirts, tote bags and books, can be ordered from the AADE website.

Organization Name: American Diabetes Association

Website Address: www.diabetes.org

Agency Type: National lay organization

Postal Address: 1701 N. Beauregard Street
Alexandria, VA 22311

Phone Number: (800) 232-3472

Description: A private, voluntary organization that fosters public awareness of diabetes and supports and promotes diabetes research. It publishes information on many aspects of diabetes, and local affiliates sponsor community programs. Local affiliates can be found through the national office.

Clinical Practice Recommendations. The American Diabetes Association: Standards of Medical Care for Patients with Diabetes Mellitus. Diabetes Care 23 (suppl.1): S32-S42, 2000.

Organization Name: American Dietetic Association

Website Address: www.eatright.org

Agency Type: Professional organization

Postal Address: 216 West Jackson Boulevard, Suite 800
Chicago, IL 60606-6995

Phone Number: (312) 899-0040

Description: To promote sound nutrition information for the public, the Association sponsors publications, national events and media and marketing programs. ADA has a national media program with 27 registered dietitian spokespeople. The Association establishes standards of quality for professional practice in all areas of dietetics practice. It also provides a full range of services for members. ADA lobbies for federal legislation that will contribute to the nutritional well-being of the public through its government affairs office.

Organization Name: American Optometric Association (AOA)

Website Address: www.aoanet.org

Agency Type: Professional organization

Postal Address: 243 North Lindbergh Blvd.
St. Louis, MO 63141

Phone Number: (314) 991-4100

Description: The American Optometric Association (AOA) seeks to advance the availability and accessibility of quality eye, vision, and related health care; to represent the profession of optometry; to enhance and promote the independent and ethical decisionmaking of its members; and to assist doctors of optometry in practicing successfully in accordance with the highest standards of patient care. The Association supports year-round programming to educate Americans about their vision and eye health and encourages people to take steps to preserve and protect their vision. AOA represents over 33,000 doctors of optometry trained in the diagnosis and treatment of eye disease, including diabetic retinopathy. The AOA provides patient referrals to local optometrists by calling 1-800-262-3947.

Organization Name: American Podiatric Medical Association

Website Address: www.apma.org

Agency Type: Professional organization

Postal Address:

Phone Number:

Description: The American Podiatric Medical Association is the premier professional organization representing the nation's Doctors of Podiatric Medicine (podiatrists). The APMA represents approximately 80 percent of the podiatrists in the country. Within APMA's umbrella of organizations are 53 component societies in states and other jurisdictions, as well as 22 affiliated and related societies. APMA provides foot health information to the public in a number of ways, including through its toll free number, 1-800-FOOTCARE. There are more than three dozen different foot health brochures available at no charge.

Sponsors Foot Health Month in April.

YOUR PODIATRIC PHYSICIAN TALKS ABOUT DIABETES at www.apma.org/topics/Diabetes.htm

Organization Name: Cancer Information Service (CIS)

Website Address: www.cis.nci.nih.gov

Agency Type: Federal government

Postal Address: NCI Office of Cancer Communications
Building 31, Room 10A16
9000 Rockville Pike
Bethesda, MD 20892

Phone Number: (800) 422-6237

Description: Provides information about cancer and cancer-related resources to patients, the public, and health professionals. Inquiries are handled by trained information specialists. Distributes free publications from the National Cancer Institute. Spanish-speaking staff members are available.

Organization Name: CDC National Prevention Information Network (CDCNPIN)

Website Address: www.cdcnpin.org

Agency Type: Federal government

Postal Address: P.O. Box 6003
Rockville, MD 20849-6003

Phone Number: (800) 458-5231

Description: Develops, identifies, and collects information on the prevention, treatment, and control of HIV/AIDS, STDs, and TB. Provides information to healthcare providers and consumers. Provides reference and referrals to public and private resources, offers access to online databases, maintains a web site with up-to-date information, and distributes publications.

Organization Name: Centers for Disease Control and Prevention - Division of Diabetes Translation Clearinghouse

Website Address: www.cdc.gov/diabetes

Agency Type: Federal government

Postal Address: 1600 Clifton Road, NE
Atlanta, GA 30333

Phone Number: (800) 311-3435

Description: Home page includes fact sheets, statistics, publications, and information about State diabetes control programs.

1-800-CDC-DIAB

CDC distributes several publications including a patient guide for people with diabetes (available in English and Spanish), a diabetes surveillance report, and the eight-page National Diabetes Fact Sheet: National Estimates and General Information on Diabetes in the United States. State-based diabetes control programs develop and maintain local programs and produce materials on diabetes for the general public and health professionals.

Take Charge of Your Diabetes: A 76-page spiral bound book for adults with diabetes. It focuses on the value of glucose control, team work, community and family support, and simple preventive steps for helping to promote health and prevent complications. Yellow record sheets are provided for recording tests that should be done once a year and at every visit.

The Prevention and Treatment of Complications of Diabetes: A Guide to Primary Care Practitioners - This 93-page book describes ways to help the primary care provider prevent, detect, and treat major diabetes complications. (Only available on the internet)

The Economics of Diabetes Mellitus: An Annotated Bibliography - Contains most of the important economic studies currently available regarding the direct health care costs related to diabetes and interventions to reduce the burden of diabetes.

Diabetes Surveillance, 1997 - This report documents the number of diabetes-related hospital discharges with lower extremity amputations as a reported procedure between 1990 and 1994.

www.cdc.gov/diabetes/pubs/dmspn/index.htm

www.cdc.gov/diabetes/pubs/nhlRecommendations.htm - Centers for Disease Control and Prevention's Diabetes Program - National Hispanic/Latino Expert Consultant Group Recommendations

www.cdc.gov/diabetes/projects/latino.htm
National Hispanic/Latino Diabetes Initiative for Action

Organization Name: Dental Health Foundation

Website Address: www.dentalhealthfoundation.org

Agency Type: National lay organization

Postal Address: 520 Third Street, Suite 205
Oakland, CA 94607

Phone Number: (510) 663-3727

Description: The foundation works to bring the latest findings in dental research to the general public, educators, and health practitioners - thereby bridging the gap between scientific knowledge and its application at the community level.

Organization Name: Diabetes Action- Research and Education Foundation

Website Address: www.daref.org

Agency Type: National lay organization

Postal Address: 426 C Street, NE
Washington, DC 2002

Phone Number:

Description: Non-profit organization dedicated to supporting education and research to enhance the quality of life for all people affected by diabetes. Emphasis is on nutritional therapies for prevention and treatment.
Diabetes Action has provided over \$18 million in research, education and treatment services since 1990.
Every year Diabetes Action provides the Diabetes University©, a free informational program for the public. It is a conference for diabetic adults, children, families, caregivers and educators.

Organization Name: Diabetes al Dia- Hispanic Diabetics

Website Address: www.diabeticohispano.com

Agency Type: Private

Postal Address:

Phone Number:

Description: Informational site in Spanish. Topics include prevention and diagnosis of diabetes, nutrition and diabetes complications.

¿Qué es la Diabetes?
¿Cómo se Detecta la Diabetes?
¿Qué Causa la Diabetes?
Síntomas de la Diabetes
Tipos de Diabetes
Complicaciones Diabéticas
La Diabetes en los Hispanos
Prevención de la Diabetes

Organization Name: Diabetes digest

Website Address: www.diabetesdigest.com

Agency Type: Private

Postal Address:

Phone Number:

Description: Site of the free bi-annual Consumer's Diabetes Digest publication for people with diabetes, available at many local pharmacy or supermarket pharmacy.

Organization Name: Diabetes Education Network

Website Address: www.healthtalk.com/den/index.html

Agency Type: Private

Postal Address:

Phone Number:

Description: a comprehensive source for diabetes information, from Health Talk Interactive.

Organization Name: Diabetes Education Society, Inc.

Website Address: www.diabeteseducation.com

Agency Type: Private

Postal Address: 535 Detroit Street
Denver, CO 80206

Phone Number: (800) 659-5808

Description: Lifeskills: The Diabetes Self-management Skills Program.
Provides diabetes education and management.

Organization Name: Diabetes in America Homepage

Website Address: <http://diabetes-in-america.s-3.com>

Agency Type: Federal government

Postal Address:

Phone Number:

Description: A huge compendium of the current state of Diabetes in America, with epidemiological, clinical and public health data. PDF format chapters available for download. has been designed to serve as a reliable scientific resource for assessing the scope and impact of diabetes and its complications, determining health policy and priorities in diabetes, and identifying areas of need in research. The intended audience includes health policy makers at the local and Federal levels who need a sound quantitative base of knowledge to use in decision making; clinicians who need to know the probability that their patients will develop diabetes and the prognosis of the disease for complications and premature mortality; persons with diabetes and their families who need sound information on which to make decisions about their life with diabetes; and the research community which needs to identify areas where important scientific knowledge is lacking.

Organization Name: Diabetes News

Website Address: www.diabetesnews.com

Agency Type: Private

Postal Address:

Phone Number:

Description: An online newspaper of items with importance to the Diabetic community. Also contains a number of quality links and resources at the end.

Organization Name: Diabetes Quality Improvement Project--Compendium of Best Practices

Website Address: www.dqip.org/compendium.html

Agency Type: Professional organization

Postal Address:

Phone Number: (888) 691-9167

Description: The Compendium of Diabetes Best Practices assists health care providers by improving the screening, monitoring, and treatment of diabetic patients. It was developed by the Texas Medical Foundation under a contract with the Health Care Financing Administration (HCFA).

Organization Name: DiabetesWell-- eClinic Program

Website Address: www.diabeteswell.com

Agency Type: Private

Postal Address: 3301 El Camino Real
Atherton, CA 94027

Phone Number:

Description: A program that combines accepted practices for controlling glucose and preventing complications with dietary and fitness plans. The DiabetesWell eClinic program includes:
Diagnosis, Management, and Coaching by Medical Staff
Online Glucose Monitoring with Data Displays and Graphs
Secure Web Page to Track Management, Medication
A Personal Food Plan Developed by a Registered Dietitian
A Personal Fitness Plan Created by an Exercise Physiologist
E-mail Access to Medical Staff
Free Subscription to Dr. Joe's Daily E-news
Local Lab Referrals for Testing for Complications
Permission to grant your Primary Care Physician access to patient's "My Health Center" Web Page
Unlimited Access to Extensive Online Education Center

Organization Name: Diabetic Retinopathy Foundation

Website Address: www.retinopathy.org

Agency Type: National lay organization

Postal Address: 350 North LaSalle, Suite 800
Chicago, IL 60610

Phone Number:

Description: Not-For-Profit Organization, whose mission is to support research and public awareness which will lead to the prevention of one of the World's major causes of blindness - Diabetic Retinopathy. This website describes in detail microvascular disease and available treatments. The site emphasizes how to reduce one's risk and also explains the patient's responsibilities for eye health. The web page lists diabetes-related links that can be searched.

Organization Name: Diabetic-lifestyle

Website Address: www.diabetic-lifestyle.com

Agency Type: Private

Postal Address:

Phone Number:

Description: Diabetic-lifestyle monthly online magazine

Organization Name: Food and Drug Administration (FDA)

Website Address: www.fda.gov/opacom/morecons.html

Agency Type: Federal government

Postal Address: 5600 Fishers Lane, HFE - 88
Rockville, MD 20857

Phone Number: (888) 463-6332

Description: Responds to consumer requests for information and publications on foods, drugs, cosmetics, medical devices, radiation-emitting products, and veterinary products.

Organization Name: Food and Nutrition Information Center

Website Address: www.nal.usda.gov/fnic

Agency Type: Federal government

Postal Address: National Agricultural Library/FNIC
U.S. Department of Agriculture, ARS
10301 Baltimore Avenue, Room 304
Beltsville, MD 20705-2351

Phone Number: (301) 504-5719

Description: One of several information centers located at the National Agricultural Library, part of the U. S. Department of Agriculture's Agricultural Research Service. Provides information on food, human nutrition, and food safety. Resource lists, databases, and many other food- and nutrition-related links available on FNIC Web site. Collections includes books, manuals, journal articles, and audiovisual materials. Eligible patrons may borrow directly; others may borrow through interlibrary loan.

Organization Name: Foundation for Accountability (FACCT)

Website Address: www.facct.org

Agency Type: National lay organization

Postal Address: 520 SW Sixth Ave. Suite 700
Portland, OR 97204

Phone Number: (503) 223-2228

Description: General information about FACCT is included in their website. Measurement Guides can be ordered through the web page. The FACCT site contains information on quality based decisions, consumer information, educating consumers on quality, measuring quality, and advice on how to collect quality data. Information on diabetes can be found through the measuring quality link. FACCT lists quality measures for diabetes.

Organization Name: Frequently Asked Questions on Diabetes

Website Address: www.faqs.org/faqs/diabetes

Agency Type: Private

Postal Address:

Phone Number:

Description: Usenet Diabetes FAQ DA list of frequently asked questions (FAQ) from the Usenet Diabetes Newsgroup.

Organization Name: Hardin Meta Directory (MD) of Internet Health Sources

Website Address: www.lib.uiowa.edu/hardin/md/endocrin.html

Agency Type: Other

Postal Address:

Phone Number:

Description: The Hardin MD website is a directory that contains a listing of websites related to endocrinology and diabetes. The websites are listed according to size and some are marked as the "best of the best."

Organization Name: Health A to Z: Your Family Health Site

Website Address: www.healthatoz.com

Agency Type: Private

Postal Address:

Phone Number:

Description: Medical and health care resources for patients, their families, friends, health care workers and physicians.

Organization Name: Health Answers - Diabetes

Website Address: www.healthanswers.com/Centers/Disease/disease.asp?id=diabetes

Agency Type: Private

Postal Address:

Phone Number:

Description: HealthAnswers.com, is the producer of a comprehensive, educational and award-winning interactive healthcare Web site for consumers and professionals alike. Source for up-to-the minute information on diabetes; diabetes news, disease-management tools, library, chat and discussion forums, and related links.

Organization Name: Health Care Financing Administration

Website Address: www.hcfa.gov/quality3r.htm

Agency Type: Federal government

Postal Address:

Phone Number: (888) 691-9167

Description: A tool kit for implementing an academic detailing intervention for increasing foot exams. The kit includes: an implementation plan for the Peer Review Organization, guidelines for the detailer, principles of academic detailing, podiatry consult request and report forms, exam documentation sheet, chart stickers, references and resources, and 1 10-minute video of a foot exam.

Compendium of Diabetes Best Practices -

Includes peer reviewed studies and quality improvement projects that document successful interventions in screening, monitoring and treatment of diabetic patients for improved outcomes. Tables address barriers to high quality diabetes care and effective interventions. Many of the studies and quality improvement projects relate specifically to foot care improvements.

Diabetes Interventions Toolkit: Provides examples of resources and tools that have been used successfully by clinicians, diabetes educators, peer review organizations, managed care organizations and others to improve care. It includes flowsheets, algorithms, patient education materials, practitioner toolkits and abstraction tools. Many of the tools specifically address foot care.

Organization Name: Health Care Products

Website Address: www.diabeticproducts.com

Agency Type: Private

Postal Address: 369 Bayview Ave.,
Amityville, NY 11701

Phone Number: (800) 899-3116

Description: Health Care Products, has been a provider of products that are specifically geared toward improving the diabetic's quality of life. These include Diabetic Tussin®, The worlds #1 sugar-free cough medication, DiabetiDerm™ Deep Moisturizing Lotion and Cream, DiabetiSweet®, The only sugar substitute that looks, feels, bakes and tastes just like sugar.

Organization Name: Health Central

Website Address: www.healthcentral.com/home/home.cfm

Agency Type: Private

Postal Address:

Phone Number:

Description: It provides health-related information and commentary by experts such as Dr. Dean Edell.

Organization Name: Health Finder in Spanish

Website Address: www.healthfinder.gov/justforyou/espanol/default.htm

Agency Type: Federal government

Postal Address:

Phone Number:

Description: Free guide to reliable health information. A service of the U.S. Department of Health and Human Services. Esta sección del healthfinder® contiene una selección de fuentes de información en español. Esta información le puede servir de guía al tomar decisiones acerca de su salud. Para obtener información al día acerca de los temas más relevantes sobre la salud, visite "temas claves". Revise los "medios en línea" para ponerse al día sobre los últimos informes del gobierno.

Organization Name: Health Promotion and Disease Prevention--Health Finder

Website Address: www.healthfinder.gov

Agency Type: Federal government

Postal Address:

Phone Number:

Description: healthfinder® is a free Federal gateway to reliable consumer health and human services links and information developed by the U.S. Department of Health and Human Services. It offers rapid access to more than 5000 reliable links, including online and print publications, libraries, clearinghouses, referral services, research and clinical information databases, discussion and self-help groups.

Organization Name: International Society on Hypertension in Blacks

Website Address: www.ishib.org

Agency Type: Professional organization

Postal Address: 2045 Manchester Street, NE
Atlanta, GA 30324-4110

Phone Number: (404) 875-6263

Description: Not-for-profit, professional, medical membership Society devoted to improving the health and life expectancy of ethnic populations. ISHIB's organizational scope includes hypertension, diabetes, stroke, lipid disorders, renal disease, and other related cardiovascular diseases.

Minority populations are at greater risk for many health conditions. ISHIB has assembled patient information sheets, which focus on the impact of certain conditions on minority populations.
www.ishib.org/main/patient_info_diabetes.htm
Information for Patients: Fact Sheet on Diabetes

Organization Name: Johns Hopkins Health Information-Diabetes

Website Address: www.intelihealth.com

Agency Type: Private

Postal Address: IntelliHealth Inc.
960C Harvest Drive
P.O. Box 1097
Blue Bell, PA 19422

Phone Number: (215) 775-5155

Description: Diabetes Health Area:
www.intelihealth.com/IH/ihlH/WSIHW000/21054/21054.html?k=zonex408x21054
Topics include: news, basic information, interactive tools, search tools on medical literature, and Ask the Doc Q & A section, feature articles and recipes.

Organization Name: Joslin Diabetes Center

Website Address: www.joslin.org

Agency Type: Other

Postal Address: One Joslin Place
Boston, MA 02215

Phone Number: (617) 732-2400

Description: Site for people newly diagnosed with diabetes. Joslin Diabetes Center is a NIDDK supported Diabetes Endocrinology Research Center (DERC), and aims to educate people with diabetes, their families and friends through the classes offered at the Joslin Diabetes Online Learning Center.

Only US medical center dedicated solely to diabetes treatment, research, cure and education.

Organization Name: Juvenile Diabetes Foundation International (JDF)

Website Address: www.jdf.org

Agency Type: National lay organization

Postal Address: 120 Wall Street
New York, NY 1005

Phone Number: (800) 533-2873

Description: The Juvenile Diabetes Foundation is a private, voluntary organization that focuses on type 1 or insulin-dependent diabetes. Local affiliates are found across the country. Its mission: to find a cure for diabetes and its complications through the support of research.

Organization Name: Latino USA - The Radio Journal of News and Culture

Website Address: www.latinousa.org

Agency Type: National lay organization

Postal Address:

Phone Number:

Description: A radio journal of news and culture, is the only national, English-language radio program produced from a Latino perspective. It is a production partnership of KUT Radio and the Center for Mexican American Studies at The University of Texas at Austin. Latino USA is distributed by National Public Radio and the Longhorn Radio Network to 172 stations in 31 states, the District of Columbia, and Puerto Rico. Latino USA's distribution by Radio Bilingüe and the Armed Forces Radio service, expand the program's reach to other listeners and worldwide audiences.

Organization Name: MANA - A National Latina Organization

Website Address: www.hermana.org

Agency Type: National lay organization

Postal Address: 1725 K Street, NW, Suite 501
Washington, DC 20006

Phone Number: (202) 833-0060

Description: MANA, A National Latina Organization, is a nonprofit, advocacy organization established in 1974. Its mission is to empower Latinas through leadership development and community action. MANA fulfills its mission through programs designed to develop the leadership skills of Latinas, promote community service by Latinas, and provide Latinas with advocacy opportunities. Support for these programs is derived from members, corporations, foundations, and government grants. Founded in 1974 by Mexican-American women, the membership voted to become MANA, A National Latina Organization in honor of the diversity of its ranks. Today MANA advocates for all Latinas.

Organization Name: Minority Health Professions Foundation

Website Address: www.minorityhealth.org

Agency Type: Professional organization

Postal Address: 3 Executive Park Drive, NE, Suite 100
Atlanta, GA 30329

Phone Number: (404) 634-1993

Description: The Minority Health Professions Foundation (MHPF) is a nonprofit educational, scientific and charitable 501(c)(3) organization that provides support for professional education, research and community service that promote optimum health among poor and minority people. It does this by engaging the collaborative resources, scholarship and technology of minority health professions schools. The twelve member institutions of the Foundation include medical, dental, pharmacy, and veterinary medicine schools in historically African-American colleges and universities.

Organization Name: Models That Work Campaign

Website Address: www.bphc.hrsa.dhhs.gov/mtw/mtw.htm

Agency Type: Federal government

Postal Address: Bureau of Primary Health Care
4350 East-West Highway
Bethesda, MD 20814

Phone Number: (800) 859-2386

Description: MTW Campaign is to increase access to primary and preventive health care for underserved and vulnerable populations by fostering dissemination, replication and adaptation of innovative community-driven solutions that foster health, social and economic benefits. It identifies model programs through a national competition provides assistance for replication and adaptation of model programs; shares information on models through various resources; and builds partnerships with organizations that have vested primary health care interests.

Organization Name: National Aging Information Center

Website Address: www.aoa.gov/naic

Agency Type: Federal government

Postal Address: U.S. Administration on Aging
330 Independence Avenue, SW
Room 4656
Washington, DC 20201

Phone Number: (202) 619-7501

Description: Serves as a central source for a wide variety of program and policy-related materials, demographic, and other statistical data on health, economic, and social status of older Americans. Responds to any public inquiry about Federal programs and policies for the elderly. Maintains a 3,800 bibliographic database of research and demonstration reports and documents, develops and maintains a publications list for AoA, and distributes fact sheets on aging topics for caregivers and older adults. Develops topic-and issue-based Web link pages as a series called "Aging Internet Information Notes."

Sponsors: Older Americans Month- in May

Organization Name: National Alliance for Hispanic Health

Website Address: www.hispanichealth.org

Agency Type: National lay organization

Postal Address: 1501 16th Street, NW
Washington, DC 20036

Phone Number: (202) 387-5000

Description: The National Alliance for Hispanic Health is the oldest and largest network of health and human service providers servicing over 10 million Hispanic consumers throughout the U.S. since 1973 we have grown from a small coalition of visionary mental health providers to a large, dynamic, and strong group of organizations and individuals. The website has a News & Information Center.

Publications: A Primer for Cultural Proficiency: Towards Quality Health Services for Hispanics (Estrella Press 2001).

Delivering Preventative Health Care to Hispanics: A Manual for Providers.

Organization Name: National Association of Hispanic Nurses, Inc.

Website Address: www.nahnhq.org

Agency Type: Professional organization

Postal Address: 1501 16th Street, NW
Washington, DC 20036

Phone Number: (202) 387-2477

Description: NAHN strives to serve the nursing and health care delivery needs of the Hispanic community and the professional needs of Hispanic nurses. NAHN is designed and committed to work toward improvement of the quality of health and nursing care for Hispanic consumers and toward providing equal access to educational, professional, and economic opportunities for Hispanic nurses.

Organization Name: National Caucus and Center on Black Aged, Inc. (NCBA)

Website Address: www.ncba-blackaged.org

Agency Type: National lay organization

Postal Address: 1424 K Street, NW, Suite 500
Washington, DC 20005

Phone Number: (202) 637-8400

Description: The National Caucus and Center on Black Aged is the only national organization whose major focus is improving life for African American and low income elderly.

Wellness Promotion & Disease Prevention Programs:

Caregivers Training

Eldercare Empowerment/Advocacy Training

Community Health Alert Partners

Circle of Friends

New Directions: Linkages to Wellness

Diabetes Education program for national women's organizations.

Organization Name: National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)

Website Address: www.cdc.gov/nccdphp/needhome.htm

Agency Type: Federal government

Postal Address: 4770 Buford Highway, MS K-13
Atlanta, GA 30341-3724

Phone Number: (770) 488-5080

Description: Provides information and referrals to the public and to professionals. Gathers information on chronic disease prevention and health promotion. Develops the following bibliographic databases focusing on health promotion program information: Health Promotion and Education, Cancer Prevention and Control, Comprehensive School Health with an AIDS school health component, Prenatal Smoking Cessation, and Epilepsy Education and Prevention Activities. Produces bibliographies on topics interest in chronic disease prevention and health promotion. The National Center for Chronic Disease Prevention and Health Promotion Information Center collections include approximately 400 periodical subscriptions, 4,000 books, and 400 reference books. Visitors may use the collection by appointment. Produces the Chronic Disease Prevention (CDP) File CD-ROM, which includes the above database and the CPD Directory, a listing of key contacts in public health.

Organization Name: National Center for Complementary and Alternative Medicine (NCCAM) Information Clearinghouse

Website Address: www.ncam.nih.gov

Agency Type: Federal government

Postal Address: P.O. Box 8218
Silver Springs, MD 20907-8218

Phone Number: (888) 644-6226

Description: Develops and disseminates fact sheets, information packages, and publications to enhance public understanding about complementary and alternative medicine research supported by the NIH. NCCAM public information is currently free of charge; however, due to printing and duplication costs, only a limited number of copies can be requested. Information Specialists can answer inquiries in English or Spanish. After normal hours, callers have the option of receiving fact sheets and other information by Fax.

Organization Name: National Center for Farmworkers Health

Website Address: www.ncfh.org

Agency Type: Private

Postal Address: 1770 FM 967
Buda, TX 78610

Phone Number: (512) 312-2700

Description: Private, not-for-profit corporation located in Austin, Texas, set to improve the health status of farmworker families through the appropriate application of human, technical, and information resources.

Bilingual Patient Education Materials. Austin, TX: National Center for Farmworker Health, Inc., 1996.

www.ncfh.org/pateduc.htm

This portfolio of low literacy, bilingual presentations was developed for use as a patient education tool to supplement and enhance existing teaching methods in migrant health centers and in outreach programs. It was developed with the intention of providing health care practitioners an easy, low cost method for providing health education to low literacy patients who speak English or Spanish. These materials may be printed and used free of charge.

Organization Name: National Center for Health Statistics (NCHS)

Website Address: www.cdc.gov/nchs

Agency Type: Federal government

Postal Address: Data Dissemination Branch
6525 Belcrest Road
Room 1064
Hyattsville, MD 20782

Phone Number: (301) 458-4636

Description: Answers requests for catalogs of publications and electronic data products; disseminates single copies of publications, such as Advance Data reports; provides information for publications and electronic products sold through the Government Printing Office and National Technical Information Service; adds addresses to the mailing list for new publications; and provides specific statistical data collected by the National Center for Health Statistics.

Organization Name: National Conference of Puerto Rican Women (NACOPRW)

Website Address: www.nacoprw.org

Agency Type: National lay organization

Postal Address: 5 Thomas Circle
Washington, DC 20005

Phone Number: (202) 387-4716

Description: Non-profit, non-partisan, tax-exempt organization dedicated to promoting the full participation of Puerto Rican and other Hispanic women in their economic, social, and political life in the United States and Puerto Rico.
MEMBERSHIP: The membership of ACOPRW is comprised of a diverse group of individuals who support the goals of the organization. NACOPRW has its national headquarters in Washington, DC, and maintains a visible presence at the national and state levels through its chapters in the United States: Chicago, ILL; East Indiana, IN; Long Island, NY; New York City, NY; Miami, FL; Northern Virginia, VA, Philadelphia, PA, Tri-County, Maryland, Washington, D.C., South California, CA; and Puerto Rico. NACOPRW is one of twenty-four organizations governing the National Hispanic Leadership Agenda (NHCLA) in Washington, D.C.

Organization Name: National Council of La Raza (NCLR)

Website Address: www.nclr.org

Agency Type: National lay organization

Postal Address: 1111 19th Street, NW. Suite 1000
Washington, DC 20036

Phone Number: (202) 785-1670

Description: A private, nonprofit organization whose goal is to reduce poverty and discrimination, and improve the life opportunities for Latinos/Hispanic Americans. NCLR works toward this goal by providing capacity-building assistance and by providing policy analysis and advocacy. Presently, there are over 250 community-based organizations affiliated with NCLR--many of which provide direct health services. The Center for Health Promotion (CHP) is a component of NCLR that aims to advance the health status of Latinos by advocating equitable health policies/programs at the local and national levels, increasing the extent and quality of health education and prevention and promotion activities targeting Latinos, improving access to health services, and "partnering" with local community organizations and other allies to further these goals.

Diabetes-Related Activities and Materials:

CHP has developed various educational materials that are distributed among its affiliates. These materials include a chapter on diabetes in the training manual used with lay health educators during field training, and a guide, Diabetes Among Latinos. In addition, training is conducted to promote diabetes awareness and education.

Organization Name: National Council of Negro Women (NCNW)

Website Address: www.ncnw.com

Agency Type: National lay organization

Postal Address: 633 Pennsylvania Avenue, NW
Washington, DC 20004

Phone Number: (202) 737-0120

Description: Non-profit organization that works at the national, state, local and international levels. In pursuit of the goal to "leave no one behind" and improve quality of life for women, children and families, the early leaders of NCNW recognized that besides a "national organization of national organizations," they would need to build coalitions at the grassroots level.

NCNW consists of 38 affiliated national organizations, 250 community-based Sections chartered in 42 states, 20 college-based Sections and 60,000 individual members. As the umbrella organization for this widely diverse group of organizations and individuals, ranging from college-based sororities and professional associations to civic and social clubs, NCNW has an outreach to over four million women.

Organization Name: National Dental Association

Website Address: www.ndaonline.org

Agency Type: Professional organization

Postal Address: 3517 16th Street, NW
Washington, DC 20010

Phone Number: (202) 737-0120

Description: The NDA is a dental organization for ethnic minorities. It represents a family of 10,000 dentists, students, hygienists, assistants, spouses, and the communities they serve. It is the parent organization of the Student National Dental Association, and umbrella to the National Dental Hygienists Association, the National Dental Assistants Association, and the Auxiliary to the NDA (spouses). Dental News.

Organization Name: National Diabetes Education Program (NDEP)

Website Address: www.ndep.nih.gov/

Agency Type: Federal government

Postal Address: 1 Information Way
Bethesda, MD 20892-3560

Phone Number: (800) 430-5383

Description: The NDEP is a joint initiative sponsored by the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH). It is based on a partnership of public and private organizations that are concerned about the health status of their constituents. The NDEP is designed to improve treatment and outcomes for people with diabetes, to promote early diagnosis, and to prevent the onset of diabetes. Program activities are directed to these audiences: The general public; people with diabetes and their families; health care providers; and payers and purchasers of health care and policy makers.

Organization Name: National Diabetes Information Clearinghouse (NDIC)

Website Address: www.niddk.nih.gov/health/diabetes/nddic.htm

Agency Type: Federal government

Postal Address: 1 Information Way
Bethesda, MD 20892-3560

Phone Number: (301) 654-3327

Description: NDIC is an information and referral service of the National Institute of Diabetes and Digestive and Kidney Diseases, one of the National Institutes of Health. The clearinghouse responds to written inquiries, develops and distributes publications about diabetes, and provides referrals to diabetes organizations, including support groups. It maintains a database of patient and professional education materials from which literature searches are generated. Responds to written, telephone, and e-mail inquiries, develops and distributes publications about diabetes, and provides referrals to diabetes organizations, including support groups.

Diabetes education materials are available free or at little cost. Literature searches on myriad subjects related to diabetes are provided. NDIC publishes Diabetes Dateline, a semiannual newsletter.

Toll free number: 1800-860-8747.

Organization Name: National Digestive Diseases Information Clearinghouse

Website Address: www.niddk.nih.gov/health/digest/niddic.htm

Agency Type: Federal government

Postal Address: 2 Information Way
Bethesda, MD 20892-3570

Phone Number: (301) 654-3810

Description: A referral service and central information resource on the prevention and management of digestive diseases, the clearinghouse responds to written inquiries, develops and distributes publications about digestive diseases, and provides referrals to digestive disease organizations, including support groups. It also maintains a database of patient and professional education materials from which literature searches are generated.

Organization Name: National Eye Institute- NIH

Website Address: www.nei.nih.gov

Agency Type: Federal government

Postal Address: 9000 Rockville Pike
Bethesda, MD 20892

Phone Number: (301) 496-9110

Description: Established by Congress in 1968 to protect and prolong the vision of the American people, the National Eye Institute (NEI), one of the Federal government's National Institutes of Health (NIH), conducts and supports research that helps prevent and treat eye diseases and other disorders of vision. This research leads to sight-saving treatments, reduces visual impairment and blindness, and improves the quality of life for people of all ages. NEI-supported research has advanced our knowledge of how the eye functions in health and disease.

Through its National Eye Health Education Program (NEHEP), the National Eye Institute conducts large-scale public and professional education programs in partnership with national organizations. NEI produces patient and professional education materials related to diabetic eye disease and its treatment, including literature for patients, guides for health professionals, and education kits for community health workers and pharmacists. The following titles focus on diabetic eye disease: Educating People with Diabetes (kit), Information Kit for Pharmacists, and Ojo con su Visión (Watch Out for Your Vision) (in Spanish).

1-800-869-2020 (for health professionals only)

Organization Name: National Guideline Clearinghouse (NGC)

Website Address: www.guideline.gov

Agency Type: Federal government

Postal Address:

Phone Number:

Description: The NGC website is a public resource for evidence-based clinical practice guidelines. By narrowing the search to diabetes mellitus, information can be found on screening for diabetes, nutrition recommendations, standards for medical care, and exercise programs for diabetics. NGC is sponsored by the Agency for Healthcare Research and Quality (AHRQ) (formerly the Agency for Health Care Policy and Research [AHCPR]) in partnership with the American Medical Association and the American Association of Health Plans.

Organization Name: National Health Information Center

Website Address: www.health.gov/nhic

Agency Type: Federal government

Postal Address: P.O. Box 1133
Washington, DC 20013-1133

Phone Number: (800) 336-4797

Description: Helps the public and health professionals locate health information through identification of health information resources, an information and referral system, and publications. Uses a database containing descriptions of health-related organizations to refer inquirers to the most appropriate resources. Does not diagnose medical conditions or give medical advice. Prepares and distributes publications and directories on health promotion and disease prevention topics.

Organization Name: National Hispanic Council on Aging (NHCoA)

Website Address: www.nhcoa.org

Agency Type: National lay organization

Postal Address: 2713 Ontario Road, NW
Washington, DC 20009

Phone Number: (202) 745-2521

Description: National membership-based organization. It is dedicated to improving the quality of life for Latino elderly, families, and communities through advocacy, capacity and institution building, development of educational materials, technical assistance, demonstration projects, policy analysis and research.

<http://www.nhcoa.org/diabetes.htm> With links to read the latest articles & get updates.

Organization Name: National Hispanic Medical Association (NHMA)

Website Address: www.home.earthlink.net/~nhma

Agency Type: Professional organization

Postal Address: 1411 K Street, NW, Suite 200
Washington, DC 20005

Phone Number: (202) 783-6262

Description: The National Hispanic Medical Association was organized in 1994 to address the interests and concerns of 26,000 licensed physicians and 1,800 full-time Hispanic medical faculty dedicated to teaching medical and health services research. As a rapidly growing national resource based in the nation's capital, NHMA provides policymakers and health care providers with expert information and support in strengthening health service delivery to Hispanic communities across the nation.

Organization Name: National Hispanic Religious Partnership for Community Health

Website Address:

Agency Type: Other

Postal Address: 5 Thomas Circle, NW, 4th Floor
Washington, DC 20005

Phone Number: (202) 265-3338

Description: Established in 1996, representing approximately 2,000 churches within the United States, that have a unique access to the nation's poor and minority Hispanic community. The NHRP is using its institutional organizational base to assist these churches to develop a network of comprehensive health services targeted to Hispanic communities. They include AIDS programs; women's centers; youth projects; child abuse prevention; health education; mental health services; rehabilitation programs; and community centers.

Organization Name: National Institute of Dental and Craniofacial Research-NIH

Website Address: www.nidcr.nih.gov

Agency Type: Federal government

Postal Address: National Institutes of Health
Building 31, Room 2C39

Phone Number: (301) 496-3571

Description: Report of the Surgeon General, "Oral Health in America".

Organization Name: National Institute of Diabetes and Digestive and Kidney Diseases
(NIDDK)- NIH

Website Address: www.niddk.nih.gov

Agency Type: Federal government

Postal Address:

Phone Number: (301) 435-0714

Description: NIDDK conducts and supports research on many of the most serious diseases affecting public health. The Institute supports much of the clinical research on the diseases of internal medicine and related subspecialty fields as well as many basic science disciplines.

NIDDK operates three information clearinghouses of potential interest to people seeking diabetes information and funds six Diabetes Research and Training Centers and eight Diabetes Endocrinology Research Centers.

Phoenix Diabetes Epidemiology and Clinical Research Branch:
www.niddk.nih.gov/intram/branchlb/pecrb.htm

Diccionario de la Diabetes
www.niddk.nih.gov/health/diabetes/pubs/dmspn/index.htm

The online Directory of Diabetes organizations was recently updated and now includes a total of 30 Government, professional, voluntary, and private organizations. The directory is an excellent resource for health professionals and people with diabetes. It lists sources of educational materials and support for people with diabetes, providing for each organization a mission statement, its education materials, and contact information. The directory is at:
www.niddk.nih.gov/health/diabetes/pubs/diaborgs/diaborgs.htm

Organization Name: National Institute on Aging Information Center

Website Address: www.nih.gov/nia

Agency Type: Federal government

Postal Address: P.O. Box 8057
Gaithersburg, MD 20898-8057

Phone Number: (800) 222-2225

Description: Provides publications on health topics of interest to older adults, doctors, nurses, social activities directors, health educators and the public.

Organization Name: National Institutes of Health (NIH)

Website Address: www.nih.gov

Agency Type: Federal government

Postal Address: National Institutes of Health
9000 Rockville Pike
Bethesda, MD 20892

Phone Number: (301) 402-1366

Description: Comprised of 25 separate Institutes and Centers, the NIH is one of eight health agencies that is part of the U.S. Department of Health and Human Services.

Organization Name: National Kidney Foundation, Inc.

Website Address: www.kidney.org

Agency Type: National lay organization

Postal Address: 30 East 33rd Street, Suite 1100
New York, NY 10016

Phone Number: (800) 622-9010

Description: Voluntary health organization. Seeks to prevent kidney and urinary track diseases.

Sponsor: National Kidney Month-in March

Organization Name: National Optometric Association (NOA)

Website Address:

Agency Type: Professional organization

Postal Address: 3723 Main Street
P.O. Box F
East Chicago, IN 46312

Phone Number: (219) 398-1832

Description: The National Optometric Association's mission is to develop a sense of professional and community awareness of the status of eye health in the minority community and the national community at large and to make known the impact of visual dysfunction on the effectiveness and productivity of our citizens and the academic proficiency of our students.

Organization Name: National Oral Health Information Clearinghouse

Website Address: www.nohic.nidr.nih.gov

Agency Type: Federal government

Postal Address: 1 NOHIC Way
Bethesda, MD 20892-3500

Phone Number: (301) 402-7364

Description: A service of the National Institute of Dental and Craniofacial Research. Focuses on the oral health concerns of special care patients, including people with generic disorders or systemic diseases that compromise oral health, people whose medical treatment causes oral problems, and people with mental or physical disabilities that make good oral hygiene practices and dental care difficult.

Develops and distributes information and educational materials on special care topics, maintains a bibliographic database on oral health information and materials, and provides information services with trained staff to respond to specific interests and questions. OH Notes is NOHIC's newsletter, which is published annually.

Organization Name: National Urban League, Inc. (NUL)

Website Address: www.nul.org

Agency Type: National lay organization

Postal Address: 120 Wall Street, 8th Floor
New York, NY 10005

Phone Number: (212) 558-5300

Description: Nation's oldest and largest community-based movement devoted to empowering African Americans to enter the economic and social mainstream. Headquartered in New York City, spearheads nonprofit, nonpartisan, community-based movement. The heart of the Urban League movement is professionally staffed Urban League affiliates in over 100 cities in 34 states and the District of Columbia.

Organization Name: National Women's Health Information Center (NWHIC)

Website Address: www.4woman.gov

Agency Type: Federal government

Postal Address: 8550 Arlington Boulevard, Suite 300
Fairfax, VA

Phone Number: (800) 994-9662

Description: A national clearinghouse for women's health, sponsored by the Office on Women's Health within the U.S. Department of Health and Human Services. It acts as a "women's health central," reducing to a single point of entry, the vast array of information available through more than 1500 Federal and private sector organizations.

A referral service that provides a gateway to women's health information from other government agencies, public and private organizations, and consumer and health care professional groups.

Additional links:

www.4woman.gov/owh/pub/minority/index.htm -The Health of Minority Women

www.4woman.gov/owh/pub/fshis-dia.htm - Diabetes Mellitus in Hispanic Women

www.4woman.gov/owh/pub/fshis-access.htm - Problems with Health Care Access: Hispanic Women

Organization Name: Office of Minority Health Resource Center (OMHRC)

Website Address: www.omhrc.gov

Agency Type: Federal government

Postal Address: 5515 Security Lane, Suite 101
Rockville, MD 20852

Phone Number: (800) 444-6472

Description: OMH-RC responds to information requests from health professionals and consumers on minority health issues and locates sources of technical assistance. Provides referrals to relevant organizations and distributes materials. Spanish-speaking operators are available. Also offers mailing lists, database searches, referrals, and more for African-American, Asian, Hispanic/Latino, American Indian/Alaska Native, and Pacific Islander populations. OMH-RC publishes the newsletter Closing the Gap.

Organization Name: Ojo Con Su Vision-Watch Out for Your Vision

Website Address: www.nei.nih.gov/nehep/espanol.htm

Agency Type: Federal government

Postal Address: National Eye Health Education Program - NEI
Information Office

Phone Number: (301) 496-5248

Description: National Eye Health Education Program
Latino/Hispanic Communication Plan:
Reaching Latinos/Hispanics at Risk
June 1994

The National Eye Institute (NEI), one of the Federal government's National Institutes of Health, is addressing this public health problem through programs of biomedical research, disease prevention, and health promotion. In 1991, NEI established the National Eye Health Education Program (NEHEP), which it coordinates in partnership with a variety of public and private organizations that conduct eye health education programs. The focus of the NEHEP is on public and professional education programs that encourage early detection and timely treatment of glaucoma and diabetic eye disease and the appropriate treatment for low vision.

Organization Name: On-line Diabetes Resources

Website Address: www.mendosa.com/faq.htm

Agency Type: Private

Postal Address:

Phone Number:

Description: Listing of Resources

Organization Name: Prevent Blindness America

Website Address: www.preventblindness.org

Agency Type: National lay organization

Postal Address: 500 East Remington Road
Schaumburg, IL 60173

Phone Number: (800) 331-2020

Description: Volunteer eye health and safety organization dedicated to fighting blindness and saving sight. The headquarters of Prevent Blindness America are located in the Chicago area, with a network of affiliates, divisions, chapters, branches and volunteer action units throughout the United States. Prevent Blindness America's grass roots operations provide a wide variety of community services and information:

- Adult and children's vision screenings
- Patient and public education programs
- School-based programs and curriculums
- Professional education and training
- A toll-free information hotline (1-800-331-2020)
- Fight For Sight Research grants
- Regular media campaigns
- Informational publications and videos

Sponsor: Vision Research Month- in June

Organization Name: Primary Care Clinical Practice Guidelines - Diabetes

Website Address: <http://medicine.ucsf.edu/resources/guidelines/guidedm.html>

Agency Type: Other

Postal Address:

Phone Number:

Description: Primary Care Clinical Practice Guidelines

Organization Name: Race and Health: Diabetes

Website Address: <http://raceandhealth.hhs.gov/2ndpgBlue/2pgDiab.htm>

Agency Type: Federal government

Postal Address:

Phone Number:

Description: From the US Department of Health and Human Services

Organization Name: Rural Information Center Health Service (RICHS)

Website Address: www.nal.usda.gov/ric/richs

Agency Type: Federal government

Postal Address: National Agricultural Library, Room 304
10301 Batimore Avenue
Beltsville, MD 20705-2351

Phone Number: (800) 633-7701

Description: Disseminates information on a variety of rural health issues including health professions, health care financing, special populations and the delivery of health care services. Provides information, referrals, publications, and brief complimentary literature searches to professionals and the public. Posts rural health information on the Internet. RICHS is funded by the Federal Office of Rural Health Policy, the Department of Health and Human Services and is part of the U.S. Department of Agriculture Rural Information on rural issues such as economic development, and community well-being.

Organization Name: The Congress of National Black Churches, Inc. (CNC)

Website Address: www.cnbc.org

Agency Type: Private

Postal Address: 1225 I Street, NW, Suite 750
Washington, DC 20005

Phone Number: (202) 371-1091

Description: An ecumenical coalition of eight historically Black denominations. Founded in 1978 and headquartered in Washington, D.C., CNBC's eight member denominations represent 65,000 churches and a membership of more than 20 million people.

Organization Name: The Diabetes Center

Website Address: www.endocrineweb.com/diabetes

Agency Type: Private

Postal Address:

Phone Number:

Description: Introduction to diabetes symptoms, diagnosis, and treatments.

Organization Name: The Diabetes Mall

Website Address: www.diabetesnet.com

Agency Type: Private

Postal Address:

Phone Number:

Description: The Diabetes Mall at www.diabetesnet.com is a leading Web-based source of information and retail products focused exclusively on diabetes. Offers diabetes information and research, a weekly newsletter and discounts on diabetes products.

Organization Name: The Diabetes Monitor

Website Address: www.diabetesmonitor.com

Agency Type: Private

Postal Address:

Phone Number:

Description: Diabetes Monitor: Created by MDCC, this is a huge site with lots of links to patient resources that is frequently updated.

Organization Name: The Hispanic-Serving Health Professions Schools

Website Address: www.hshps.com

Agency Type: Professional organization

Postal Address: 1411 K Street, NW, Suite 200
Washington, DC 20005

Phone Number: (202) 783-6262

Description: Non-profit organization established in 1996 in response to the President's Executive Order 12900, "Educational Excellence for Hispanic Americans." The Association was established with support from the U.S. Department of Health and Human Services as a part of the DHHS "Hispanic Agenda for Action Initiative." HSHPS currently represents 17 medical schools.

Organization Name: The Whittier Institute for Diabetes

Website Address: www.scrippshealth.org/whittier

Agency Type: National lay organization

Postal Address:

Phone Number: (800) 727-4777

Description: The mission of this web site, Whittier.org, is to acquaint you with the extensive research efforts being made at The Whittier Institute for diabetes.

Whittier.org will also provide you with a broad range of informative and useful features, including a guide to the best on-line resources available for those coping with this difficult disease.

Organization Name: U. S. Federal Consumer Information Center

Website Address: www.pueblo.gsa.gov

Agency Type: Federal government

Postal Address: Pueblo, CO 81009

Phone Number: (719) 948-4000

Description: Helps Federal agencies develop, promote, and distribute consumer information to the public through the Consumer Information Catalog and Web site. The catalog, available in print and online, lists over 200 free and low-cost Federal consumer publications on topics such as product recalls, health, energy conservation, money management, and nutrition. Also offers the Consumer Action Handbook in print and online and the Lista Publicaciones Federales en Espanol Para El Consumidor.

Organization Name: Yahoo-diabetes

Website Address: http://dir.yahoo.com/Health/Diseases_and_Conditions/Diabetes

Agency Type: Private

Postal Address:

Phone Number:

Description: Yahoo's Diabetes Links: The premiere listing service.

Appendix G

Culturally and Linguistically Appropriate Service (CLAS) Standards

National Standards for Culturally and Linguistically Appropriate Services (CLAS)

These are the National Standards for Culturally and Linguistically Appropriate Services (CLAS) in health care by the US Department of Health and Human Services' (HHS) Office of Minority Health (OMH), issued in December 2000.

1. Health Care Organizations Should Ensure That Patients/Consumers Receive From All Staff Members Effective, Understandable, and Respectful Care That Is Provided in a Manner Compatible With Their Cultural Health Beliefs and Practices and Preferred Language
2. Health Care Organizations Should Implement Strategies To Recruit, Retain, and Promote at All Levels of the Organization a Diverse Staff and Leadership That Are Representative of the Demographic Characteristics of the Service Area
3. Health Care Organizations Should Ensure That Staff at All Levels and Across All Disciplines Receive Ongoing Education and Training in Culturally and Linguistically Appropriate Service Delivery
4. Health Care Organizations Must Offer and Provide Language Assistance Services, Including Bilingual Staff and Interpreter Services, at No Cost to Each Patient/Consumer With Limited English Proficiency at All Points of Contact, in a Timely Manner During All Hours of Operation
5. Health Care Organizations Must Provide to Patients/Consumers in Their Preferred Language Both Verbal Offers and Written Notices Informing Them of Their Right To Receive Language Assistance Services
6. Health Care Organizations Must Assure the Competence of Language Assistance Provided to Limited English Proficient Patients/Consumers by Interpreters and Bilingual Staff. Family and Friends Should Not Be Used To Provide Interpretation Services (Except on Request by the Patient/Consumer)
7. Health Care Organizations Must Make Available Easily Understood Patient-Related Materials and Post Signage in the Languages of the Commonly Encountered Groups and/or Groups Represented in the Service Area
8. Health Care Organizations Should Develop, Implement, and Promote a Written Strategic Plan That Outlines Clear Goals, Policies, Operational Plans, and Management Accountability/Oversight Mechanisms To Provide Culturally and Linguistically Appropriate Services

9. Health Care Organizations Should Conduct Initial and Ongoing Organizational Self-Assessments of CLAS-Related Activities and Are Encouraged To Integrate Cultural and Linguistic Competence-Related Measures Into Their Internal Audits, Performance Improvement Programs, Patient Satisfaction Assessments, and Outcomes-Based Evaluations
10. Health Care Organizations Should Ensure That Data on the Individual Patient's/Consumer's Race, Ethnicity, and Spoken and Written Language Are Collected in Health Records, Integrated Into the Organization's Management Information Systems, and Periodically Updated
11. Health Care Organizations Should Maintain a Current Demographic, Cultural, and Epidemiological Profile of the Community as Well as a Needs Assessment to Accurately Plan for and Implement Services That Respond to the Cultural and Linguistic Characteristics of the Service Area
12. Health Care Organizations Should Develop Participatory, Collaborative Partnerships With Communities and Utilize a Variety of Formal and Informal Mechanisms to Facilitate Community and Patient/Consumer Involvement in Designing and Implementing CLAS--Related Activities
13. Health Care Organizations Should Ensure That Conflict and Grievance Resolution Processes Are Culturally and Linguistically Sensitive and Capable of Identifying, Preventing, and Resolving Cross-Cultural Conflicts or Complaints by Patients/Consumers
14. Health Care Organizations Are Encouraged to Regularly Make Available to the Public Information About Their Progress and Successful Innovations in Implementing the CLAS Standards and To Provide Public Notice in Their Communities About the Availability of This Information

From: www.omhrc.gov/clas/frclas2.htm. Accessed: March 30, 2001

Appendix H

States with Largest Minority of Hispanics/Latinos

23 States Where Latinos Constitute Largest Minority Population 2000 Population Figures

	Latino	Black	White	Asian
California	10,966,566	2,181,926	15,816,790	3,648,860
Texas	6,669,666	2,364,255	10,933,313	554,445
New York	2,867,583	2,812,623	11,760,981	1,035,926
Florida	2,682,715	2,264,268	10,458,509	261,693
Arizona	1,295,617	149,941	3,274,258	89,315
New Jersey	1,117,191	1,096,171	5,557,209	477,012
New Mexico	765,386	30,654	813,495	18,257
Colorado	735,601	158,443	3,202,880	93,277
Washington	441,509	184,631	4,652,490	319,401
Massachusetts	428,729	318,329	5,198,359	236,786
Nevada	393,970	131,509	1,303,001	88,593
Connecticut	320,323	295,571	2,638,845	81,564
Oregon	275,314	53,325	2,857,616	100,333
Utah	201,559	16,137	1,904,265	36,483
Kansas	188,252	151,407	2,233,997	46,301
Idaho	101,690	4,889	1,139,291	11,641
Nebraska	94,425	67,537	1,494,494	21,677
Rhode Island	90,820	41,922	858,433	23,416
Iowa	82,473	60,744	2,710,344	36,345
Wyoming	31,669	3,504	438,799	2,670
New Hampshire	20,489	8,354	1,175,252	15,803
Maine	9,360	6,440	1,230,297	9,014
Vermont	5,504	2,921	585,431	5,160

Source: Tomás Rivera Policy Institute analysis of Census 2000 Redistricting Data (Public Law 94-171)

Appendix I

Calendar of Diabetes-related Health Observances

CALENDAR 2001

National Diabetes-Related Health Observances

Health Observances are days, weeks, or months devoted to promoting particular health concerns. This list selected health observances related to diabetes and its complications, and special populations.

January

National Eye Care Month
American Academy of Ophthalmology
(415) 561-8500

February

American heart Month
American Heart Association
1 (800) AHA-USA1

March

National Kidney Month
National Kidney Foundation
1 (800) 622-9010

National Nutrition Month
American Dietetic Association (ADA) and its Foundation.

March 16

Diabetes Awareness Commemorative Stamp
American Diabetes Association and United States Postal Service
1 (800) DIABETES

March 23

American Diabetes Alert
American Diabetes Association
1 (800) DIABETES

April

National Public Health Week
American Public Health Association
(202) 777-APHA

May

National Sight-Saving Month
Prevent Blindness America
1 (800) 331-2020

Older Americans Month
Administration on Aging
(202) 619-7501

June

Vision Research Month
Prevent Blindness America
1 (800) HOPE

June 11-17

National Men's Health Week National Men's Health Foundation
1 (800) 955-202

September

OMH: National Leadership Summit on Eliminating racial and Ethnic Disparities in Health in Washington, DC

October

October 15-21

National Health Education Week
National Center for Health Education
(212) 334-9470

November

American Diabetes Month
American Diabetes Association
1 (800) 232-3472

Diabetic Eye Disease Month
Prevent Blindness America
1 (800) 331-2020

Diabetes Timeline

1500 B.C. - Early Hindu writings refer to a condition in which sweet urine attracts ants and flies. In Egypt, Ebers Papyrus describe a disease in which too much urine is passed (polyuria).

1000 B.C. - The Indian physician Susruta notes the clinical features of Madhumeha, the condition that the Western world eventually calls diabetes mellitus.

800 B.C. - In China, Chen Chuan describes a disease condition characterized by sweet urine.

230 A.D. - Aretus the Cappadocian writes of an uncommon chronic and sometimes deadly form of dropsy that melts down flesh and limbs into urine. He refers to the disease by the Greek word 'dypsacus' (diabetes), and describes many of the symptoms — unquenchable thirst, excessive drinking and a disproportionate quantity of urine. He also recommends a number of herbal and dietary remedies to stop the melting, to cure thirst and strengthen the stomach. The Latin word 'mellitus,' which means honey, is added to the name, referring to the sweetness of the urine.

900 A.D. - Through his translation of Hindu writings, the Arabian writer Rhazea disseminates information about diabetes.

1000 A.D. - Greek physicians prescribe exercise, especially on horseback, to assuage excess urination.

1037 A.D. - The Arab physician Avicenna describes many of the clinical features of diabetes and prescribes exercise, emetics and sudorifics. He also urges that diuretic foods and agents be avoided. For more advanced cases, he suggests lukewarm baths and aromatic wine.

1565 By measuring a patient's consumption and elimination of fluids, Cardona asserts that diabetes causes people to lose more water than they take in.

1622 -The Hindu doctor Susruta's works are discovered by the Western medical community.

1660 - The Oxford physician Thomas Willis notes that the sweet taste of urine is common to diabetes mellitus and distinguishes it from the non-sweet taste in diabetes insipidus. He also speculates that diabetes derives not from a weakness of the kidneys, as others had thought, but from the blood.

1775 - Matthew Dobson proves that the sweet taste of diabetic urine originates from excess sugar in the blood and speculates that diabetes is a systemic disease.

1788 - Thomas Cawley notices that the pancreas of a patient who had died of diabetes is riddled with stones and signs of tissue damage.

1796 - John Rollo, Surgeon General to the Royal Artillery, treats a patient through dietary restriction with considerable success. The patient survives for a year. Rollo also notes the smell of acetone on the breath of diabetics and makes a connection to related cataracts.

1813-1878 - Claude Bernard, a prominent professor at the Collège de France, describes a process by which the liver stores glycogen and secretes a sugary substance into the blood. His hypothesis that oversecretion of glucose by the liver causes diabetes remains the dominant view for years.

1869 - Paul Langerhans discovers islet cells in the pancreas.

1955 - Introduction of sulfonylureas, the first oral medication to lower blood glucose in people with type 2 diabetes.

1961 - Berson and Yalow develop radioimmunoassay technique to measure blood insulin levels. The technique shows that patients with type 2 diabetes have high levels of insulin early in the course of their disease. Radioimmunoassay technique is widely used to measure many hormones and other biological substances.

1966 - Katsoyannis achieves the chemical synthesis of human and sheep insulin.

1967 - Steiner shows that insulin is initially synthesized as larger protein (proinsulin) that is cleaved to form active insulin within the pancreatic beta cells.

1976 - Demonstration that glucose is chemically attached to hemoglobin in amounts related to the blood levels of glucose allows the development of tests to determine control of diabetes.

1978 - Development of practical methods to measure glucose levels from fingerstick blood forms the basis for home glucose monitoring, the cornerstone of excellent diabetes control.

1978 - Diabetes Control and Complication Trial (DCCT) shows that excellent control of blood glucose can delay or prevent the major complications of diabetic retinopathy, diabetic kidney disease and peripheral neuropathy in patients with type 1 diabetes.

1990-1997 - The introduction of more sophisticated insulin analogues, multiple injections and insulin pumps offers closer control and thereby allows patients to live fuller, more active lives.

1990-1999 - Approval of four additional types of oral drugs (metformin, troglitazone, acarbose and repaglinide) to control type 2 diabetes.

1994 - The Scandinavian Simvastatin Survival Study (4S) shows for the first time that lowering blood cholesterol reduces the number of cardiovascular events in people with diabetes.

1998 - The United Kingdom Prospective Diabetes Study (UKPDS) shows that improved control of blood glucose delays or prevents the complications of diabetic retinopathy and kidney disease in patients with type 2 diabetes. The UKPDS also found that control of blood glucose was not effective in preventing cardiovascular disease, the major cause of death in people with diabetes. UKPDS showed that lowering blood pressure greatly reduced deaths from cardiovascular disease and even slowed the development of retinopathy and kidney disease.

Diabetes Timeline. <http://www.intelihealth.com/IH/ih/IH/WSIHW000/21054/21150.html>
Accessed: April 1, 2001

Diabetes Mellitus Minimum Practice Recommendations Flow Sheet

Name: _____	ID or S.S. # _____
Sex: M _____ F _____	D. O. B. _____
Suggested Result Codes: O = Ordered N = Result Normal A = Result Abnormal E = Done Elsewhere R = Referred	

EXAMINATION/TEST	SCHEDULE						
1. Complete history & physical (Including risk factors, exercise, & diet)	Initial	Date					
		Result					
2. Weight	Every visit	Date					
		Result					
3. Blood pressure Systolic < 130 mm Hg Diastolic < 80 mm Hg	Every visit	Date					
		Result					
4. Dilated fundoscopic eye exam <i>By an ophthalmologist or therapeutic optometrist</i>	Type 1: Annually beginning 5 years from onset Type 2: Initial, then annually	Date					
		Result					
5. Foot exam (Visual inspection for lesions, calluses, & infections without shoes & socks)	Every visit	Date					
		Result					
6. Dental inspection	Every visit	Date					
		Result					
7. Glycosylated hemoglobin HbA1c < 7.0%	Every 6 months	Date					
		Result					
8. Lipid profile < 100 mg/dL LDL-C ≥ 40 mg/dL HDL-C < 150 mg/dL Triglycerides	Annually	Date					
		Result					
9. Microalbuminuria Random urine for microalbuminuria OR urinary albumin < 30 mg/24 hrs	Annually	Date					
		Result					
10. Influenza (flu) shot	Annually	Date					
		Result					
11. Pneumococcal (pnu) shot	For most people, once in a lifetime	Date					
		Result					
12. Review of the management plan*	Every 6 months	Date					
		Result					
13. Diabetes education	Initial & at clinician's discretion	Date					
		Result					
14. Nutrition counseling	Initial & at clinician's discretion	Date					
		Result					

*** Diabetic Management Plan should address:**

TDH-AH-1 (11/01)

- | | |
|--|---|
| <ul style="list-style-type: none"> a. Nutrition and weight evaluation b. Medications c. Exercise regimen d. Glucose and lipid control e. High-risk behaviors (e.g. smoking, alcohol) f. Frequency of hypoglycemia g. Compliance with aspects of self care (degree of adherence to the self- | <ul style="list-style-type: none"> management plan from the last visit, i.e., diet, medication use, exercise plan) h. Assessment of complications i. Follow-up of referrals j. Psychological/psychosocial adjustment k. General knowledge of diabetes l. Self-management skills (i.e., monitoring, sick day management) |
|--|---|



Management of Diabetes Mellitus

Diabetes Mellitus Guideline Team

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Developed

May 1996

Updated

April 1998

Literature search service

Taubman Medical Library

For more information call
GUIDES: 936-9771

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These guidelines should not be construed as including all proper methods of care or excluding other acceptable methods of care reasonably directed to obtaining the same results. The ultimate judgment regarding any specific clinical procedure or treatment must be made by the physician in light of the circumstances presented by the patient.

Patient population Adult

Objectives Improve adherence to important, morbidity-reducing recommendations for preventing, detecting, and managing diabetic complications.

Key points Routine screening and prevention efforts for cardiovascular risk factors (hypertension, hyperlipidemia, tobacco use) and for microvascular disease (retinopathy, nephropathy, neuropathy) are recommended to be performed in the following time frames. Management of risk factors, complications, and glycemia is summarized in the referenced figures.

Each regular diabetes visit	Every 3 to 6 months	Annually
<ul style="list-style-type: none"> Diabetes visit every 3 months for patients on insulin; every 6 months for patients on oral agents or diet only. Weight checked. Blood pressure measured and controlled. [A*] (See Figure 1) Diabetic foot examination performed and areas of concern discussed. [A**] (See Figure 2) Smoking cessation counseling provided for patients with tobacco dependence. [B**] (See Figure 1) Very important self-management actions reviewed and reinforced: (See Table 4) <ul style="list-style-type: none"> active responsibility for own care progress toward goal for hemoglobin A_{1c} or glycosylated Hgb level blood glucose monitoring, if on insulin regular exercise medication compliance meal plan stress and coping mechanisms family planning/birth control preconception counseling/care [B**] 	<ul style="list-style-type: none"> Hemoglobin A_{1c} or glycosylated hemoglobin measured and glycemic control optimized. [A**] (See Figure 3 and Table 1) 	<ul style="list-style-type: none"> Dilated retinal examination by an eye care specialist and treatment of retinopathy. [A**] (See Figure 2) Urine protein and, if normal, screen for microalbuminuria. ACE inhibitor for microalbuminuria or proteinuria. [A**] (See Figure 2) Monofilament testing of feet. [A**] (See Figure 2) Lipids measured and controlled. [A*, B**] (See Figure 1) Smoking status assessed. (See Figure 1) Other important self-management actions reviewed and reinforced: (Table 4) <ul style="list-style-type: none"> hypo and hyperglycemia diabetes identification complications screening foot care injection sites

Levels of evidence for the most significant recommendations:

A = randomized controlled trials; B = controlled trials, no randomization; C = observational trials; D = opinion of expert panel

* = studies performed in the general population and extrapolated to the diabetic population

** = studies performed in the diabetic population

FIGURE 1. Prevention, Screening, and Treatment of Cardiovascular Risk Factors in Patients with Diabetes Mellitus: Hypertension, Hyperlipidemia, Smoking

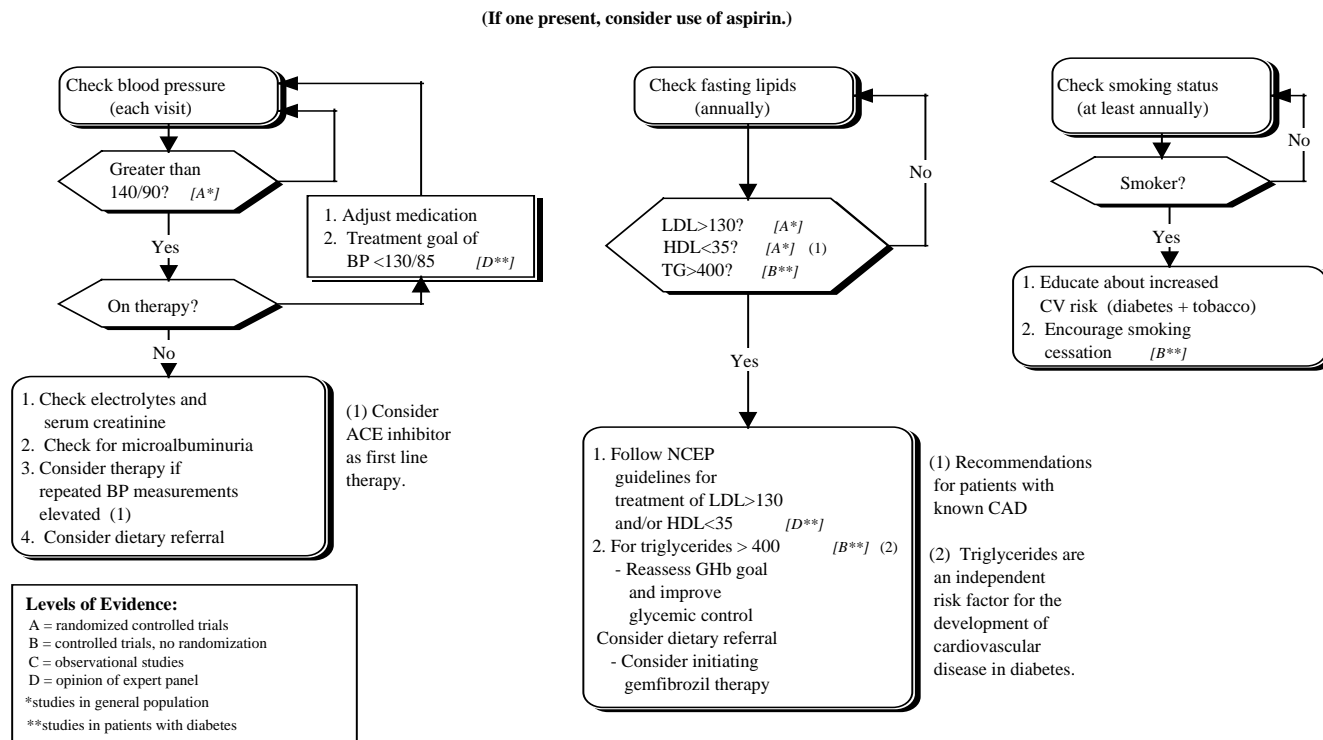


FIGURE 2. Prevention, Screening and Treatment of Microvascular Complications in Patients with Diabetes Mellitus: Retinopathy, Nephropathy, Neuropathy

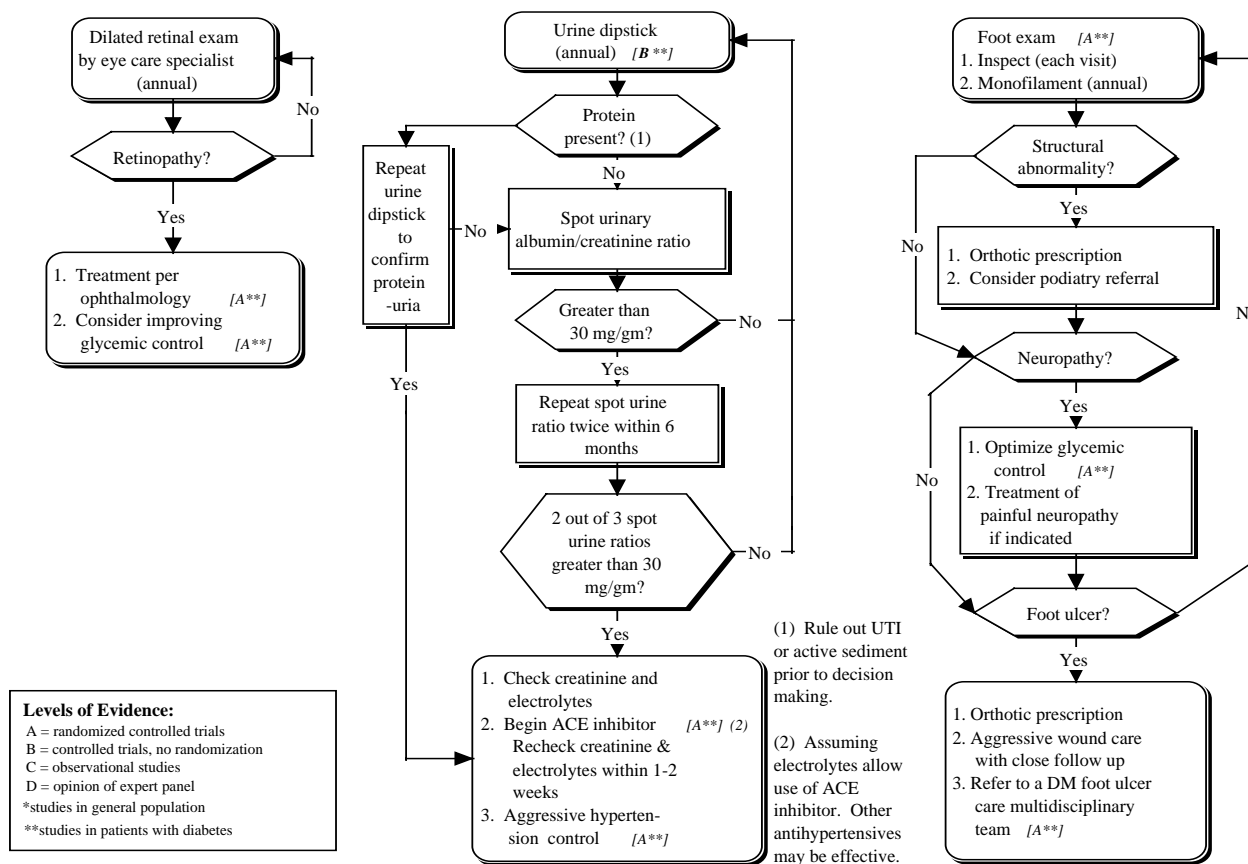


Figure 3. Monitoring Glycemic Control in Patients with Diabetes Mellitus

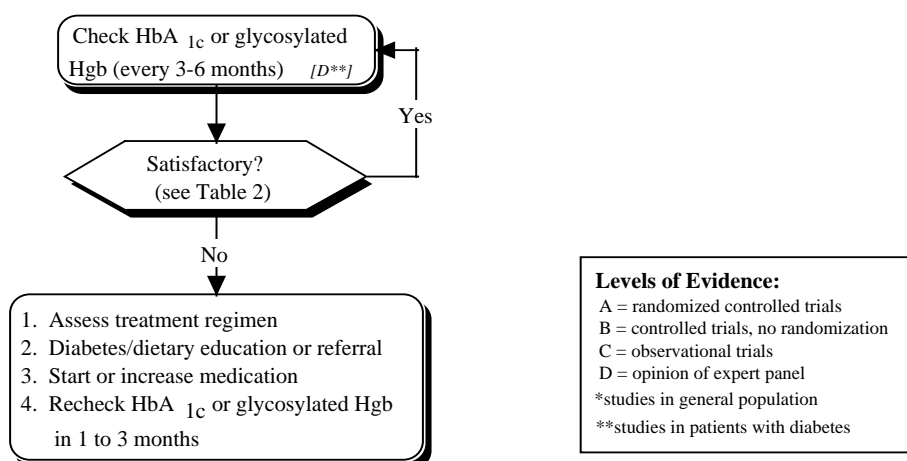


Table 1: Factors That Affect the Benefit and Risk of Tight Glycemic Control

Factors Limiting Benefit of Tight Control	Factors Heightening Risk of Tight Control
<ul style="list-style-type: none"> • Comorbidities (e.g., end-stage cancer, severe heart failure, advanced age) • Advanced diabetes complications (e.g., proliferative retinopathy, renal failure) • Inability to carry out treatment regimen (e.g., financial constraints, availability of needed supplies) • Limited life expectancy 	<ul style="list-style-type: none"> • History of severe hypoglycemia (inability to treat without assistance): any episodes within the past year and/or more than 2 episodes ever • Hypoglycemia unawareness • Advanced cardiovascular or cerebrovascular disease • Autonomic neuropathy (especially cardiac) • Comorbidities / medications that impair the detection of hypoglycemia (e.g., beta-blockers, CNS-acting drugs, alteration in mental status) • Lack of mobility or lives alone

Table 2: Adequacy of Glycemic Control Based on Factors Affecting Benefit or Risk

Factors That Affect the Benefit or Risk of Intensive Glycemic Control	Percent Hemoglobin A _{1c} or Glycosylated Hemoglobin*				
	A _{1c} 3.6–6.5%	6.5–8.0%	8.0–10%	10–11.5%	> 11.5%
Minimal	Excellent control	Good control	Fair control	Poor control	Poor control
Moderate		Excellent control	Good control	Fair control	Poor control
Substantial			Acceptable control	Fair control	Poor control

*The table shows the approximate correspondence of values of the two methods of determination.

UMHS Central Clinical Pathology Laboratories reports glycosylated hemoglobin levels. The Ann Arbor VA reports A_{1c}.

Table 3. Some Oral Agents For the Management of Type II Diabetes

Generic	Brand Name	Usual Daily Dose	Generic Cost (\$)*) (Range)	Brand Cost (\$)*)
Sulfonylureas				
<u>First Generation</u>				
Acetohexamide	Dymelor	500-750 mg once or divided	12-20	14-22
Chlorpropamide	Diabinese	250-375 mg once	2-6	25-37
Tolamide	Tolinase	250-500 mg once	11-12	19-37
Tolbutamide	Orinase	1000-2000mg once or divided	5-10	18-36
<u>Second Generation</u>				
Glimepiride	Amaryl	4mg once	NA	21
Glipizide	Glucotrol	10-20 mg once or divided	18-35	23-43
Glipizide, sustained release	Glucotrol XL	5-10 mg once or divided	NA	10-20
Glyburide	Diabeta, Micronase	5-20 mg once or divided	17-66	20-78
Glyburide, micronized	Glynase	3-12 mg once or divided	15-59	18-61
Alpha-glucosidase inhibitor				
Acarbose	Precose	50-100 mg t.i.d.	NA	41-53
Biguanide				
Metformin	Glucophage	1500-2550 mg, divided	NA	49-82
Thiazolidinedione				
rosiglitazone	Avandia	4 – 8 mg once or divided	NA	75-138**
pioglitazone	Actose	4.5mg – 45 mg	NA	45 – 149**

*Cost for 30 days treatment with lowest daily dosage based on wholesale price (AWP and HCFA) listings in *Drug Topics Red Book 1997* and *May Update*.

** *Drug Topics Red Book, 2000*

NA = generic not available

Table 4. Self-Management Topics*

<p>At each regular visit (e.g. every 3-6 months) ask about:</p> <ul style="list-style-type: none"> • Active responsibility for own care. Do you take active responsibility for your own daily diabetes care? (Demonstrate through words and actions that diabetes is a serious illness.) • Progress toward glucose goal. Do you know your most recent glycosylated hemoglobin level and your progress toward your goal level? • Blood glucose monitoring if on insulin. Do you know (1) the rationale for monitoring your blood glucose (sick day management, insulin dose adjustments)? (2) your monitoring schedule? (3) how to use the results? How do you use this information in your daily diabetes care? • Medications. What time of the day do you take your pills or insulin each day? Do you take them even if you are ill and unable to eat? What are your current doses? • Exercise. What exercise do you do to help keep your blood glucose level close to normal? • Meal plan. Are you able to use your meal plan? • Stress and Coping. Are you feeling more stressed than usual? How do you cope with this stress? • Questions answered. Do you (1) have unanswered questions? (2) want to see the dietitian or nurse educator? (3) have any concerns you would like to address? • Family planning/birth control. Are you considering pregnancy? If so, are you working to optimize blood sugars? If not, are you using birth control? <p>At least annually ask about:</p> <ul style="list-style-type: none"> • Symptoms and treatment of hyperglycemia and hypoglycemia. What are the (1) symptoms and treatment for hypoglycemia? (2) symptoms and treatment for hyperglycemia? (3) when should you contact staff? • Identification. Do you wear or carry diabetes identification? • Complications screening. Do you know (1) your results on screening tests for complications? (2) when you should be tested next? • Foot care. (1) What do you do to take care of your feet? (2) do you check your feet each day? • Injection sites. Do you rotate your injection sites around your abdomen and inspect sites?
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*Based upon expert opinion.

Clinical Problem and Current Dilemma

Prevalence. Type II diabetes is a common condition, affecting 2–3% of the population overall, and up to 20–25% of the elderly population. Type II diabetes typically occurs in patients who are over 30 years old and weigh greater than 120% of ideal body weight. Conversely, Type I diabetes occurs in patients under 30 who weigh less than 120% of ideal body weight. These patients require insulin to prevent diabetic ketoacidosis (DKA). Patients who do not fit exactly into either group should probably be classified as having Type II diabetes unless they have a history of DKA.

Outcomes. Diabetes has significant associated morbidity. There is a high rate of cardiovascular disease, resulting in an increased mortality rate among patients with diabetes compared to the general population. There are also microvascular complications, including retinopathy, nephropathy, and neuropathy, that can progress to end-stage outcomes such as blindness, renal failure, and amputation. Improving glycemic control decreases the incidence of microvascular disease, but the effect of glycemic control on cardiovascular disease remains uncertain. Minorities have a prevalence of Type II diabetes mellitus that is 2 to 6 times greater than that of white persons. The morbidity and mortality are higher for minorities than for white persons, and the rate is increasing. Therefore, in minorities with diabetes, more aggressive management may be indicated.

Inadequate screening. Screening and treatment for early diabetic complications is effective in reducing the incidence of end-stage complications. However, implementation rates of recommended screening procedures are low, leading to ineffective and/or delayed treatment of complications. This, in turn, increases the costs of medical care and adversely affects quality of life.

Need for self-management. Effective management of diabetes has many components which need to be addressed by clinicians. However, as diabetes is a largely self-managed disease, psychosocial and educational factors may affect outcomes. Therefore, these issues need to be addressed in detail by primary care providers to allow optimization of treatment and reduce the likelihood of adverse outcomes. Diabetes education should provide consistent, evidence-based teaching that conforms with treatment guidelines and patient goals.

Rationale for Recommendations

Diabetes Diagnosis and Screening

Recently, the American Diabetes Association recommended new standards for the diagnosis of diabetes. A *fasting* glucose level greater than or equal to 126 mg/dl (7.0 mmol) confirmed on a separate day is now the preferred diagnostic criterion for diabetes. As before, diabetes may also be diagnosed on the basis of symptoms (polydipsia, polyuria, unintentional weight loss) and elevated glucose level (≥ 200 mg/dl) confirmed on a

separate day (fasting glucose ≥ 126 mg/dl). The oral glucose tolerance test is generally not recommended for diagnosis of diabetes in nonpregnant adults. Use of glycosylated hemoglobin (or hemoglobin A_{1c}) to screen for diabetes is controversial due to lower sensitivity and lack of standardization of the assay.

Cardiovascular Disease

Screening and prevention should address cardiovascular risk factors.

Aspirin. People with diabetes receive the same cardiovascular protection from aspirin as nondiabetic patients. In the absence of contraindications, aspirin should be used for people with diabetes who are less than age 50 with cardiovascular risk factors, and for all individuals with diabetes age 50 or greater. The recommended dosage is 81 mg (1 baby aspirin) to 325 mg/d.

Hypertension. Hypertension (HTN) is a significant contributor to the development of atherosclerosis. Untreated HTN can also lead to worsening of albuminuria and an increase in the rate of decline of glomerular filtration rate. People with diabetes develop hypertension at twice the rate of nondiabetics. The majority of patients have essential hypertension or HTN as the result of diabetic nephropathy. However, it is important to identify secondary causes of HTN such as renal artery stenosis, Cushing's disease, and oral contraceptive usage in patients who remain refractory to therapy or who have clinical syndromes suggestive of these conditions.

If a patient has a blood pressure of greater than or equal to 140/90 on three separate occasions, intervention should be considered (Figure 1). Initially, nonpharmacologic measures including dietary alteration, exercise, restriction of alcohol, and weight loss should be attempted. In those with mildly elevated BP, a three-month trial of the above may be appropriate. In patients with moderate to severe hypertension or those who do not respond to nonpharmacologic intervention, pharmacologic therapy is indicated. Due to a lack of evidence, controversy exists regarding the optimal target BP for patients with diabetes. Expert opinion from The Sixth Report of the Joint National Committee on Detection, Evaluation and Treatment of High Blood Pressure (JNC VI) recommends treatment to a BP of 130/85 or less based on the significantly elevated risk of cardiovascular disease in patients with diabetes. Aggressive treatment to a BP of 130/85 or less may be especially beneficial for patients with diabetic nephropathy.

Antiotensin-converting enzyme (ACE) inhibitors are a reasonable first-line agent for patients with diabetes because of their potential benefits on renal function and lack of adverse effects on lipid and glucose metabolism. The angiotensin II receptor antagonists are effective antihypertensive drugs and do not cause cough. Studies are in progress to assess whether they exhibit the same renal protective effects as ACE inhibitors.

Low-dose diuretics do not appear to have adverse effects, and have been proven to reduce mortality in patients with

diabetes. High-dose thiazide diuretics have been reported to have a variety of adverse effects including worsening of hyperlipidemia, deterioration of glycemic control, impotence, and increased mortality.

The use of other anti-hypertensive agents should be based on the specific needs of the patient. Beta-blockers have an important role after myocardial infarction. People with diabetes have increased postinfarction mortality when compared with nondiabetic subjects, and diabetic patients experience greater cardioprotection with beta-blockade. Beta-blockers may obscure some of the symptoms of hypoglycemia (although this is rarely a problem with cardioselective beta-blockers) and may decrease high-density lipoprotein (HDL) and increase triglyceride levels. If a beta-blocker is used, it should be cardioselective.

Calcium channel blockers are effective antihypertensive agents, although caution should be exercised in using the dihydropyridine class as this group does not appear to have the same renal protective effects as other calcium channel blockers. As a class, calcium channel blockers have less protective effect on the kidneys than do ACE inhibitors.

Alpha₁-adrenergic receptor blockers do not have adverse glycemic or lipid effects, but may aggravate postural hypotension in some persons with diabetes.

Studies reveal that 20-60% of patients are not well controlled on monotherapy. In these instances, addition of another antihypertensive medication is required. The combination of an ACE inhibitor with a low dose thiazide diuretic works well. The combination of a beta-blocker with a thiazide may lead to an increase in plasma glucose levels.

Lipid screening and treatment. Characteristically, people with Type II diabetes have elevated triglyceride levels, while HDL levels are low. LDL levels can also be elevated. Due to the high prevalence of coronary artery disease (CAD) in diabetic patients, the National Cholesterol Education Program (NCEP) guidelines recommend that diabetic patients be screened annually and be treated intensively like patients with known CAD, with target LDL levels of less than 100 mg/dL. However, optimal screening intervals and treatment goals have not been rigorously defined. Whether to perform annual screening and/or initiate drug therapy after intensive dietary therapy depends on a variety of factors and must be left to the judgment of the physician. The first line of therapy is dietary intervention, followed by the use of HMG CoA reductase inhibitors when necessary to achieve target LDL levels.

In diabetic patients, triglycerides are an independent risk factor for the development of atherosclerotic disease. Therefore, physicians should consider starting therapy for hypertriglyceridemia at a level of 400 mg/dL. Initial therapy should consist of improving glycemic control with a combination of exercise, dietary changes, and increased intensity of oral hypoglycemics or insulin. If this is ineffective, then pharmacologic therapy should be initiated. Gemfibrozil is usually the first line of therapy for isolated

hypertriglyceridemia. Nicotinic acid should be used with caution because it may worsen hyperglycemia.

Smoking. Smoking and diabetes are synergistic risk factors for the development of atherosclerotic disease. People with diabetes should be counseled regarding these risks, and all possible measures should be used to encourage discontinuation of tobacco use. This includes enrollment in formal smoking cessation programs and use of alternative nicotine delivery systems or pharmacologic therapies when necessary.

Microvascular Disease

Screening and prevention should also address microvascular disease.

Retinopathy. Yearly dilated retinal examination reduces the incidence of blindness by allowing timely treatment (i.e. laser therapy) of proliferative retinopathy and macular edema. Current estimates indicate that only 35–50% of people with diabetes undergo annual screening, and even after enrollment in blindness prevention programs, only 60% report having received an eye examination in the prior year.

The treatment of proliferative retinopathy and macular edema are performed by ophthalmology. However, the primary care physician can improve glycemic control which has been strongly linked to the development and progression of diabetic retinopathy. Should evidence of retinopathy be found, the care provider should strongly consider lowering the target glycosylated hemoglobin level, if possible. Referral to an optometrist who performs pupil dilation and is appropriately trained and skilled in the diagnosis and classification of diabetic eye disease is acceptable, but may not be a covered benefit.

Nephropathy. Yearly screening for microalbuminuria and treatment in Type I diabetes mellitus can reduce the incidence of renal failure. There are numerous methods of testing for microalbuminuria; most are equivalent in their short-term predictive value. The spot urinary albumin-creatinine ratio is a simple method. Because of variation in urinary albumin excretion, it is recommended that, if the first test is positive, the test be repeated on at least two occasions. Two of three tests should be positive (greater than 30 mg albumin per gm of creatinine) before microalbuminuria is considered present. Ideally, a first morning urine should be used as the specimen is concentrated, allowing a higher sensitivity for detecting microalbuminuria.

Causes of elevated urinary albumin excretion in the absence of diabetic nephropathy include urinary tract infection, recent exercise, acute illness, hematuria related to urinary tract infection (UTI) or menses, and congestive heart failure. Screen for overt proteinuria and UTI via standard dipsticks before performing the albumin/creatinine ratio. One plus protein is significant. Trace protein on urinalysis should be followed up with urinary albumin-creatinine ratio measurements.

A clinical diagnosis of diabetic nephropathy may be made when an individual develops albuminuria and has had Type 1 diabetes for more than 5 years or has evidence of diabetic retinopathy. Because albuminuria may be caused by other complicating renal diseases, a person who does not meet one of the above criteria or has factors suggestive of other renal diseases (such as active urinary sediment, nephrotic range proteinuria, accelerated hypertension, or rapidly progressive renal insufficiency) will require further evaluation.

Based on expert opinion, diabetic patients with a creatinine of 2-2.5 mg/dl and nephrotic range proteinuria should be referred to a nephrologist for evaluation for other causes of nephropathy if indicated, and for discussion of potential treatment options and treatment planning.

Dietary protein restriction has been proven to be beneficial in Type I diabetic patients with proteinuria. This has not been clearly proven in Type II diabetic patients. Consider dietary referral to evaluate dietary protein in patients with proteinuria.

ACE inhibitors reduce the rate of progression from microalbuminuria to overt proteinuria and diabetic nephropathy, independent of their effect on blood pressure. Other antihypertensives (including Beta-blockers and calcium channel blockers), slow the progression but are less effective in preventing diabetic kidney disease. Some members of the dihydropyridine class of calcium channel blockers may increase urinary albumin excretion, and should be avoided in patients with microalbuminuria. ACE inhibitors should be used in all patients with microalbuminuria unless contraindications are present or side effects are intolerable.

In all cases, aggressive control of blood pressure is mandatory, with an ideal target being less than 130/85. In nonhypertensive patients with microalbuminuria, target dosages of ACE inhibitors are difficult to define. Some experts recommend titrating medications upward until a reduction in albumin excretion is seen or side effects occur.

Diabetic foot examination and care. At each regularly scheduled diabetes visit, all patients need foot inspection for skin and nail abnormalities, fissures, and ulcers. Inspection should also include identifying areas of callus formation, claw toe deformity, prominent metatarsal heads (or other bony prominences), and other structural changes.

All patients need education regarding optimal foot care which includes daily inspection by the patient and appropriately fitting shoes. To minimize the risk of trauma patients should be counseled to avoid walking barefoot and those with neuropathy should avoid high-impact exercise and the use of hot water.

Orthotic footwear should be prescribed to accommodate major foot deformities and cushion pressure areas; Medicare covers therapeutic footwear for diabetic patients. For others with less deformity, athletic shoes with sufficient

room for the toes and forefoot and cushioned socks are appropriate.

Neuropathy. Diabetic neuropathy is reported in more than 50% of patients after 15 years of diabetes. Evidence indicates early detection of diabetic neuropathy results in fewer admissions for foot ulcers and amputations.

Monofilament testing. Sensory testing with nylon monofilament (10g) should be done yearly to identify sensory loss. Testing for vibration perception (128 Hz tuning fork) is also a reliable and sensitive indicator of neuropathy.

(Instructions on “How to Use the Monofilament” are in the box at the top of the next page.)

Treatment of painful peripheral neuropathy. Nonsteroidal anti-inflammatory drugs (NSAIDs) may be helpful as first-line agents in treating painful peripheral neuropathy. Caution should be exercised in the use of NSAIDs in combination with ACE inhibitors, as NSAIDs can reduce the efficacy of ACE inhibitors and can precipitate acute renal failure in patients with impaired renal function.

Tricyclic antidepressants (TCA) started at low doses at bedtime may be used as second-line therapy in patients with painful neuropathy. They can be titrated to maximize pain relief while minimizing side effects. Doxepin is the TCA of choice in patients with cardiac disease.

Capsaicin cream may be a useful adjunct in patients whose pain is not adequately controlled by TCA, particularly in those with severe contact dyesthesias.

Careful attention should be paid to the etiology of pain in diabetic feet. Often, mechanical factors rather than neuropathy are the mechanism underlying pain. In these circumstances, NSAIDs can often be effective.

Treatment of diabetic foot ulcers. Detection and early treatment of foot ulcers is of paramount importance, as foot ulcers are among the most common reasons for hospitalization among people with diabetes. Ulcers are defined as any interruption of the integrity of the skin of the foot which extends through the entire dermis. Should a foot ulcer be found, circulation should be carefully evaluated and early treatment should be undertaken with aggressive wound care, orthotic prescriptions or casting,

How to Use the Monofilament

- Get the patient comfortable and relaxed.
- Show the patient the filament and touch his or her hand with it to show that it doesn't hurt.
- Ask the patient to say "yes" when he or she feels the filament on the foot. Don't ask, "Do you feel that?"
- Hold the filament perpendicular to the skin and use a smooth motion; touch until the filament bends, then lift off. Don't jab or bounce around.
- Touch designated parts of the feet randomly so the patient can't guess where the next point will be. Most critical are the great toe and the ball of the foot.
- If the patient doesn't say "yes" when you touch a particular spot, go to another site and come back to that one later.
- Keep the filament in its plastic case at all times when not in use. It can be cleaned with sodium hypochlorite 1:10 solution.



Source: The Gillis W. Long Hansen's Disease Center, Carville, La., and Dr. Charles Patout Jr.

pressure relief, and antibiotics when necessary. If rapid healing is not seen, immediate referral to a foot care specialist is warranted. Studies have shown that patients with diabetic foot ulcers have the best outcomes if managed by a multidisciplinary team which specializes in diabetic foot care.

Autonomic neuropathy and cardiovascular disease. Although less common in Type II than Type I diabetes, autonomic neuropathy can occur. This is primarily of concern in the detection of cardiovascular disease, as angina is often silent in the adult diabetic population. Care should be taken to elicit a history of possible atypical anginal symptoms or equivalents.

Glycemic Goal

Hemoglobin A_{1c} and glycosylated hemoglobin (GHb) are accurate measurements of long-term glycemic control. Current recommendations are that GHb be checked every 3-6 months in the patient on a stable hypoglycemic regimen, and every 1-3 months if changes are being made. Different laboratories use different measures and standard ranges; each laboratory should provide this information to clinicians.

A GHb goal or target level should be discussed and agreed upon by the patient and the primary care provider at the initial patient visit. Several factors should influence the GHb goal selected. The benefits of near-normalization of blood glucose levels in Type I diabetes are known: intensive therapy (which lowered HbA_{1c} by an average of 2%) reduced the rates of microvascular and neuropathic complications by approximately 50%. There appears to be an exponential relationship between the level of GHb and

the rate of microvascular disease. In Type II diabetes, data suggest a similar relationship between glycemic control and complication rates. The major risk of intensive control is hypoglycemia, which has been an infrequent occurrence (2% requiring medical assistance per year) in an ongoing trial of aggressive glycemic control in Type II diabetes.

Factors affecting glycemic target levels. Several factors must be considered for each patient when selecting glycemic target levels. For young, healthy patients, the possibility of eventually developing advanced complications (i.e. blindness, renal failure) should be of major concern, and in general, tight control should be advocated. However, the chronic nature of some diabetes complications implies that any benefit in postponing or preventing their clinical occurrence may be delayed years or even decades.

In the presence of factors that affect the benefit and risk of glycemic control, it is less clear whether tight control is worth the risk and lifestyle modification necessary. Table 1 provides examples of factors which affect the risk/benefit ratio of tight control.

The actual target level of glycemic control selected for each person with diabetes must represent a balance between the patient's self-determined diabetes care goals, the likelihood of benefit from attaining those goals, and the risks associated with the therapy required to achieve those goals.

Determining individual glycemic control goal. Guidelines based on GHb have been used to categorize blood glucose control as either ideal (generally coincident with definitions of tight control), acceptable, or poor. These guidelines would categorize some patients as poorly controlled, despite agreement by patient and provider that more rigid (ideal or acceptable) glucose control would be undesirable, if not

frankly contraindicated. This creates a situation in which the patient must be assigned the status of “poor” control, despite agreement by patient and provider that the glycemic level may in fact be “ideal” given the patient’s individual circumstances. One remedy to this problem is to use a classification scheme that adjusts the glycemic level associated with the categorization of ideal, acceptable or poor control, based on known factors that would limit the benefits, or heighten the risks of “ideal” blood glucose control. Ideal, acceptable (good or fair), or poor control can then be individually determined for each patient based on the factors present (see Table 2). In this way, patients and providers can set more realistic, attainable goals, giving the patient a greater likelihood of success. In almost all cases, at least good control should be sought.

The glycemic target ranges are shown in Table 2. The benefit-limiting and risk-heightening factors listed in Table 1 are given as an alternative guideline for goal-setting with the patient. It is an adjunct to, and not a substitute for careful ongoing assessment, treatment planning and follow-up. Once a glycemic target has been established, adjustment in diet and education, and if necessary, medications should be made until the target has been reached. Targets need to be reassessed on a regular basis, as the circumstances of each patient will change over time.

Glycemic management. In Type I diabetes, intensive insulin therapy as practiced in the Diabetes Control and Complications Trial should be regarded as the standard of care. Such care, delivered by a multidisciplinary team, involved 3 to 4 times daily insulin injections and 3 to 4 times daily self-monitoring of blood glucose.

If after implementing an individualized meal plan and negotiated exercise plan, a patient with Type II diabetes does not show improvement in glycemic control within one month, or does not achieve his or her glycemic goal within three months, then pharmacologic therapy should be instituted. Table 3 summarizes available oral agents for the management of Type II diabetes and their costs. Even after instituting pharmacologic therapy, careful attention must be paid to diet and physical activity.

Self-monitoring of blood glucose is recommended for patients with insulin-treated Type II diabetes with the frequency individualized to need. Self-monitoring of blood glucose may be useful for patients with non-insulin-treated Type II diabetes, but the value of regular monitoring has not been established.

- **Sulfonylureas.** Traditionally, sulfonylureas have been used as first-line therapy for patients with Type II diabetes in whom nonpharmacologic therapy has failed. Patients may be treated with a second-generation sulfonylurea starting at a low dose. Dose increments may be made every two weeks. If the patient has not achieved his or her glycemic goal after four weeks of therapy at a maximal sulfonylurea dose, sulfonylurea therapy should be considered a failure.

- **Metformin.** Metformin may also be selected as a first-line pharmacologic treatment for patients with Type II diabetes in whom nonpharmacologic therapy has failed. Metformin may be especially useful for patients who are overweight (greater than 140% of ideal body weight for age and sex) or dyslipidemic (triglyceride level greater than 600 mg/dL). Gastrointestinal side effects, including diarrhea, are seen in up to 30% of patients; a beginning dose of 500 mg metformin per day will reduce these side effects. The dosage may be increased by 500 mg per week to a maximum dose of 2.5 gm per day as 3 divided doses. Metformin therapy should be considered a failure if the patient has not achieved his or her glycemic goal after four weeks of therapy at a maximum dose.
- **Combination therapy.** Patients with Type II diabetes in whom therapy with sulfonylurea or metformin has failed are candidates for combination therapy with sulfonylurea and metformin. If the patient has not achieved his or her glycemic goals after four weeks of maximal dose combination therapy, a change of therapy is indicated.
- **Alpha-glucosidase inhibitors.** Alpha-glucosidase inhibitors such as acarbose (Precose) or miglitol (Glyset) may also be used as monotherapy in conjunction with diet to lower blood glucose or in combination with other oral agents or insulin. These drugs slow the digestion of ingested carbohydrates, delay glucose absorption into the bloodstream, and decrease postprandial blood glucose levels. The dosing for both acarbose and miglitol are the same. The initial dose is 25 mg three times a day and should be taken with the first bite of each main meal. Gastrointestinal side effects including pain, flatulence, and diarrhea are common; although these effects usually diminish over time (4-8 weeks), they frequently lead to discontinuation of the drug. Some experts advocate starting at a lower dose (25 mg once a day) to minimize the initial side effects and increase compliance. The maintenance dose may be titrated to 50 to 100 mg three times per day.
- **Thiazolidinediones.** The thiazolidinediones are a new class of oral agents designed to enhance the actions of insulin. Thiazolidinediones lower blood glucose levels by improving sensitivity to insulin in muscle and adipose tissue, and by inhibiting hepatic glucose production. Troglitazone, the first drug in this class marketed in the United States, was initially approved for use in patients with Type II diabetes on insulin therapy whose hyperglycemia was inadequately controlled despite large doses of insulin. However, troglitazone (Rezulin) has now been withdrawn from the market due to the occurrence of severe liver function abnormalities leading to death or transplant in some patients. Therefore, all patients on troglitazone should have the drug discontinued; substitution with another thiazolidinedione or alternative therapies is recommended.

There are two newer thiazolidinediones on the market, rosiglitazone and pioglitazone. There have been 2 case reports of hepatotoxicity associated with rosiglitazone; however, the relationships may not have been causal and liver function tests returned to normal when the drug was discontinued. All patients who are started on thiazolidinediones should have baseline AST and ALT levels, with follow-up levels at least every 2 months for at least 12 months.

The thiazolidinediones typically reduce HbA1c by 1-2% when added to other agents. The starting dose for rosiglitazone is 4 mg/d, and the drug should be titrated to a maximum dose of 8 mg/d (the dosage can also be split into twice daily dosing). The starting dose for pioglitazone is 7.5 or 15 mg/d, and the drug can be titrated to a maximal dose of 45 mg/d.

- **Bedtime insulin/daytime sulfonylurea (BIDS) therapy.** For patients with Type II diabetes who are hesitant to discontinue oral agents or to take more than one insulin injection per day, BIDS therapy may be considered. The patient is continued on daytime sulfonylurea at a maximum dose. Self-monitoring of blood glucose is intensified and NPH insulin is added at bedtime. The usual starting dose of insulin is 0.3 u/kg of body weight. Adjust therapy to achieve glycemic goals.
- **Insulin.** If four weeks of BIDS therapy fails to achieve the Type II diabetic glycemic goals, treatment should be changed to twice daily insulin injections. Therapy should be intensified as needed with twice daily split/mixed insulin, three times daily insulin therapy, or multiple daily injections to achieve glycemic goals.

Special Circumstances

Pregnancy / Pre-Conception Counseling

All female patients with diabetes who are of child-bearing potential should be counseled regarding the increased risk of diabetes and pregnancy. Family planning and contraception should be emphasized, as unplanned pregnancy has an even higher risk of poor outcome. Diabetes mellitus can significantly increase the risk of morbidity and mortality for the pregnant woman and the fetus/neonate. A significantly higher incidence of congenital anomalies occurs when maternal glycosylated hemoglobin in the first trimester is elevated. Specific preconception care for women with diabetes who are currently planning pregnancy is of prime importance to achieve the optimal outcome for both mother and baby. However, less than 20% of women with diabetes receive pre-pregnancy care.

Women not currently planning pregnancy. Women not currently planning pregnancy require general information regarding the risks of pregnancy and the need for pre-pregnancy planning. The importance of preventing pregnancy by establishing an acceptable method of birth control should be emphasized. Maintaining good glycemic

control as a way of life can avoid preconception hyperglycemia in the event of an unplanned pregnancy.

Women who are or plan to become pregnant. Women with diabetes who are pregnant or who are planning to become pregnant should be counseled regarding the increased risks of pregnancy, the genetics of diabetes, the changes in lifestyle necessary (i.e. a personal commitment to diabetes care by the woman and family), and the possibility of hospitalization during pregnancy. These women require a GHb measurement in addition to the routine laboratory testing and examination done for all pregnant women. In addition to usual prenatal care, the management plan should include discontinuation of oral hypoglycemics and ACE inhibitors and initiation of insulin therapy, with a plan of achieving blood glucose or GHb in the normal range. Specific attention should be given to diet and exercise programs to allow adequate nutrition and optimal weight maintenance. ACE inhibitors are not teratogenic per se, but when used in pregnancy during the second and third trimesters, can cause injury and death to the developing fetus. When pregnancy is detected, ACE inhibitors should be discontinued as soon as possible. As with all pregnancies, folic acid (400 mcg. qd) should be prescribed and cessation of tobacco, alcohol, illicit drug, and caffeine use should be emphasized.

When to Consider Consultation or Referral

Consider consultation or referral for patients with:

- uncertain classification of diabetes, e.g., diabetes associated with endocrinopathies such as acromegaly, Cushing's syndrome, or pheochromocytoma; genetic defects of beta-cell function (MODY); genetic defects in insulin action (Type A syndrome of insulin resistance)
- Type I diabetes and frequent hypoglycemia or hyperglycemia or glycosylated hemoglobin level greater than glycemic goal
- plans for pregnancy
- multiple severe complications of diabetes
- chronic lack of adherence to their treatment regimen
- family problems or significant psychiatric problems interfering with treatment
- substantial disability despite adequate therapy
- frequent emergency room or hospital admission

Information the Patient Needs to Know

At the time the diagnosis of diabetes mellitus is made, the patient should be given extensive information about the disease and its management, including the importance of self-management. An important part of the primary care provider's role in the ongoing management of diabetes is to review and update the information the patient needs to manage the disease, to ascertain the patient's understanding of that information, to ascertain the extent to which the

patient is managing the disease appropriately, and to reinforce self-management behaviors.

Table 4 presents a list of important self-management topics and questions about them will help elicit the patient's understanding and actions. The entire list may be too long to go over at every visit, so items have been grouped to ensure that particularly important topics are checked frequently. However, any topic may be important at any visit.

Evidence Summary

Strategy for Literature Search

Preliminary evidence was identified using literature considered relevant by members of the panel. These articles and their bibliographies were used as a starting point. Further evidence was identified using a Medline search that included the following terms: Diabetes (all inclusive and non-insulin-dependent), retinopathy, nephropathy, neuropathy, lipids, cholesterol, triglycerides, blood glucose, glycemic control, hemoglobin A_{1c} glycosylated hemoglobin, foot care, proteinuria, microalbuminuria, and preconception care.

Evidence Regarding Specific Aspects of Care:

Aspirin therapy: The American Diabetes Association has recently published a comprehensive technical review on the indications for aspirin therapy in diabetes.

Blood pressure. No specific randomized, controlled trials identifying optimal blood pressure levels for patients with diabetes are available. A number of studies performed in the general population support a blood pressure cutoff of 140/90; JNC VI recommends a cutoff of 130/85 based on the significantly elevated risk of cardiovascular disease in patients with diabetes.

Lipids. No trials identifying cutoff or target levels for HDL and LDL have been performed specifically in patients with diabetes although some trials have now published subanalysis of their diabetic subjects showing benefit. The NCEP guidelines recommend treating patients with Type II diabetes as if they have existing cardiovascular disease, again based on the elevated risk in patients with Type II diabetes. Observational trials have shown that triglycerides are an independent risk factor for cardiovascular disease in patients with Type II diabetes.

Smoking. Many longitudinal cohort studies (non-randomized controlled trials) have shown the harmful effects of smoking among non-diabetic populations. In diabetic populations longitudinal cohort studies have shown that smoking adds to the diabetic populations' already elevated risk of CAD.

Retinal care. Multiple randomized, controlled trials have demonstrated the efficacy of laser therapy for proliferative retinopathy (60% reduction in blindness) and macular

edema (50% reduction in blindness). Screening has been shown to be cost-effective in multiple models, although randomized, controlled trials of screening performed in true primary care settings have not been performed.

Urine protein. Microalbuminuria and proteinuria have clearly been identified to be early markers of eventual diabetic nephropathy. ACE inhibitors have been shown to reduce the rate of progression of early diabetic renal disease in randomized, controlled trials in both Type I and Type II diabetes. Based on this evidence, models have demonstrated the cost-effectiveness of screening and early treatment of patients who have microalbuminuria.

Foot care. The combination of patient education regarding foot care and increased surveillance from physicians regarding foot related risk factors for amputation have been examined in a randomized controlled trial and a non-randomized controlled trial. Both trials showed a significant reduction in serious foot lesions. Both trials used a comprehensive program of diagnosis (including monofilament testing) and intervention. The effectiveness of individual components of the comprehensive programs were not evaluated separately.

Glycemic control. Based on evidence from observational trials, it has long been known that level of glycemic control is associated with the development of microvascular diabetic complications. The DCCT demonstrated this association in a randomized, controlled trial of Type I diabetes. A single randomized, controlled trial of Japanese patients with Type II diabetes has confirmed that the rate of microvascular complications can be reduced by improving levels of glycemic control as measured by hemoglobin A_{1c} (or glycosylated hemoglobin).

Preconception care. The effects of preconception care for diabetic mothers has been examined in at least five clinical trials (non-randomized) and three observational trials. All show a meaningful decrease in the percent of malformations in infants of diabetic mothers receiving preconception care.

Annotated References

Vijans S, Stevens DL, Herman WH, Funnell MM, Standiford CJ. Screening, Prevention, Counseling, and Treatment for the Complications of Type II Diabetes Mellitus. *J Gen Intern Med* 1997;12:567-580.

This review summarizes current knowledge of interventions that should improve the care of patients with Type II diabetes mellitus. Interventions lie within the realms of prevention, screening, and treatment, all of which are focused on office practice. The emphasis is on prevention of atherosclerotic disease, and prevention, screening, and early treatment of microvascular disease.

American Diabetes Association. Clinical practice recommendations 1995. *Diabetes Care*. 1995;18(Suppl 1):1-96.

The American Diabetes Association (ADA) has developed position statements on screening for diabetes, diagnosis and classification of diabetes, medical care for patients with diabetes, nutritional recommendations and principles for individuals with diabetes, diabetes and exercise, screening for diabetic retinopathy, diabetic neuropathy, foot care in patients with diabetes mellitus, detection and management of lipid disorders in diabetes, and hospital admission guidelines for diabetes mellitus, among others.

The Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus. *Diabetes Care* 1997;20:1183-1197.

This article reviews the scientific basis for the ADA's new recommendations for the diagnosis and classification of diabetes mellitus.

The Diabetes Control and Complications Trial Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. *N Engl J Med.* 1993;329:977-986.

This is the first key report from the Diabetes Control and Complications Trial, a prospective randomized controlled clinical trial of intensive therapy for insulin-dependent diabetes mellitus. It conclusively demonstrated that intensive therapy, compared to conventional insulin therapy, reduced the development and progression of all of the microvascular and neuropathic complications of IDDM. The chief adverse event associated with intensive therapy was a two to three-fold increase in severe hypoglycemia. This study proved the glucose hypothesis: that hyperglycemia causes diabetic microvascular and neuropathic complications, and treatment of hyperglycemia delays or prevents those complications.

Diabetic Retinopathy Study Research Group. Photocoagulation treatment of proliferative diabetic retinopathy: clinical application of Diabetic Retinopathy Study (DRS) findings. DRS report number 8. *Ophthalmology.* 1981;88:583-590.

The Diabetic Retinopathy Study, a randomized controlled clinical trial of photocoagulation treatment for proliferative diabetic retinopathy, demonstrated that photocoagulation as used in the study reduces the risk of severe visual loss by more than fifty percent. This report clearly outlines the high risk characteristics associated with more rapid progression to severe visual loss and advises prompt therapy for such patients. It also highlights the side effects associated with treatment; mild decreases in visual acuity and constriction of peripheral visual field.

Early Treatment of Diabetic Retinopathy Study Research Group. Early photocoagulation for diabetic retinopathy. ETDRS report number 9. *Ophthalmology.* 1991;98:766-785.

This report summarizes the results of the Early Treatment Diabetic Retinopathy Study, a randomized controlled clinical trial of early photocoagulation in the treatment of mild to severe non-proliferative or early proliferative diabetic retinopathy. The ETDRS results demonstrated that for eyes with macular edema, focal photocoagulation is effective in reducing the incidence of moderate visual loss. Focal treatment also increased the chance of visual improvement, decreased the frequency of persistent macular edema, and caused only minor visual field losses.

Lewis EJ, Hunsicker LG, Bain RP, Rohde RD. The effect of angiotensin-converting-enzyme inhibition on diabetic nephropathy. *N Engl J Med.* 1993;329:1456-1462.

This randomized controlled clinical trial compared Captopril with placebo in patients with insulin-dependent diabetes mellitus and clinical nephropathy (urinary protein excretion > 500 mg per day and serum creatinine concentration < 2.5 mg/dL). It demonstrated that therapy with the angiotensin-converting enzyme inhibitor was associated with a fifty percent reduction in the risk of the combined end points of death, dialysis, and transplantation that was independent of the small disparity in blood pressure between the groups. In subsequent studies, these findings have been extended to patients with earlier stages of diabetic nephropathy and to patients with NIDDM. ACE-inhibitors protect against deterioration in renal function in diabetic nephropathy, act independently of their effect on blood pressure control, and are more effective than blood pressure control alone.

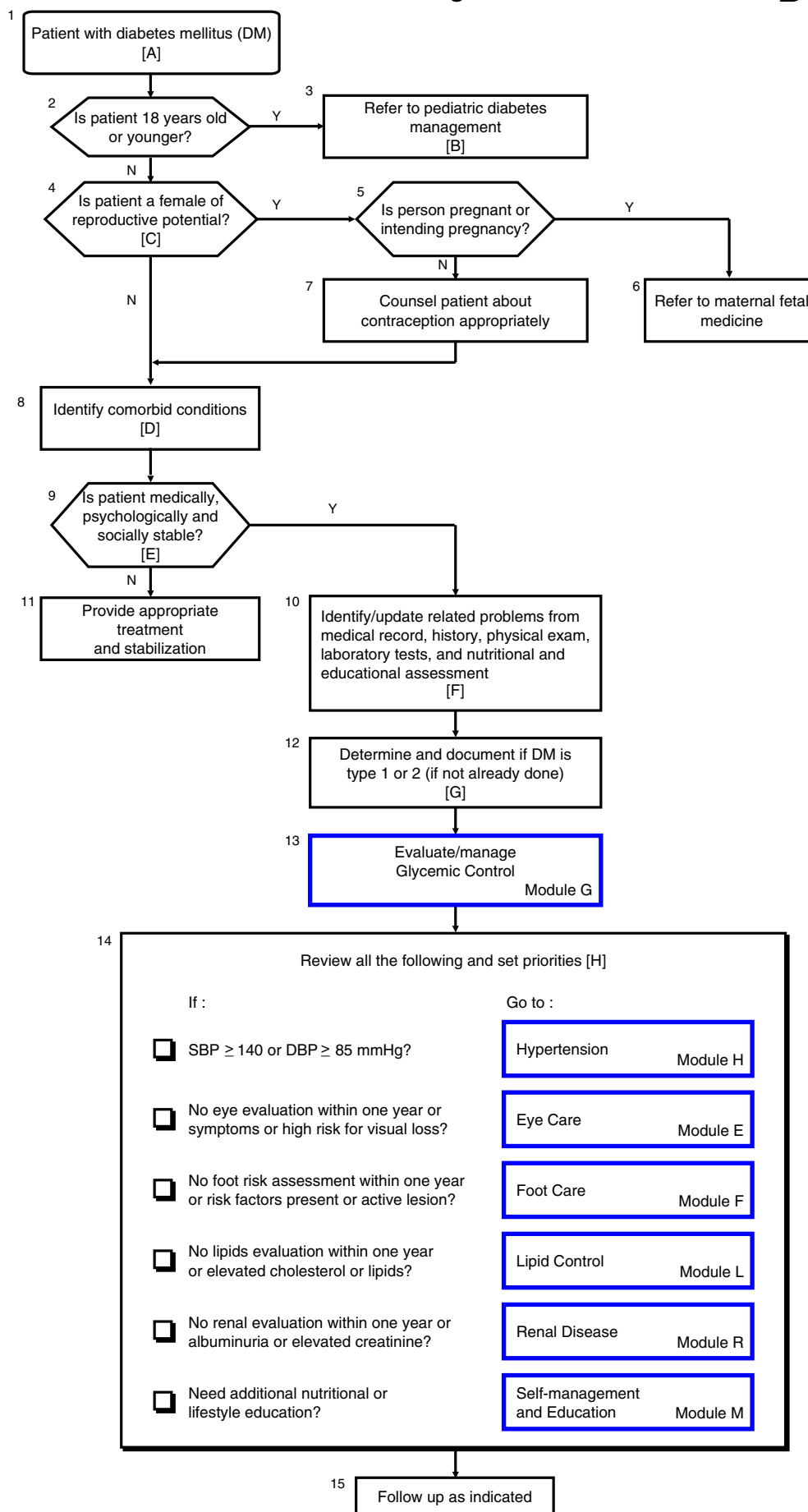
Colwell JA. Aspirin therapy in diabetes. *Diabetes Care* 1997;20:1767-1771.

This technical review summarizes the literature on the role of aspirin in diabetes.

MANAGEMENT OF DIABETES MELLITUS IN THE PRIMARY CARE SETTING

Module D - Core Algorithm

D



MANAGEMENT OF DIABETES MELLITUS IN THE PRIMARY CARE SETTING

Module E - Eye Care

E

